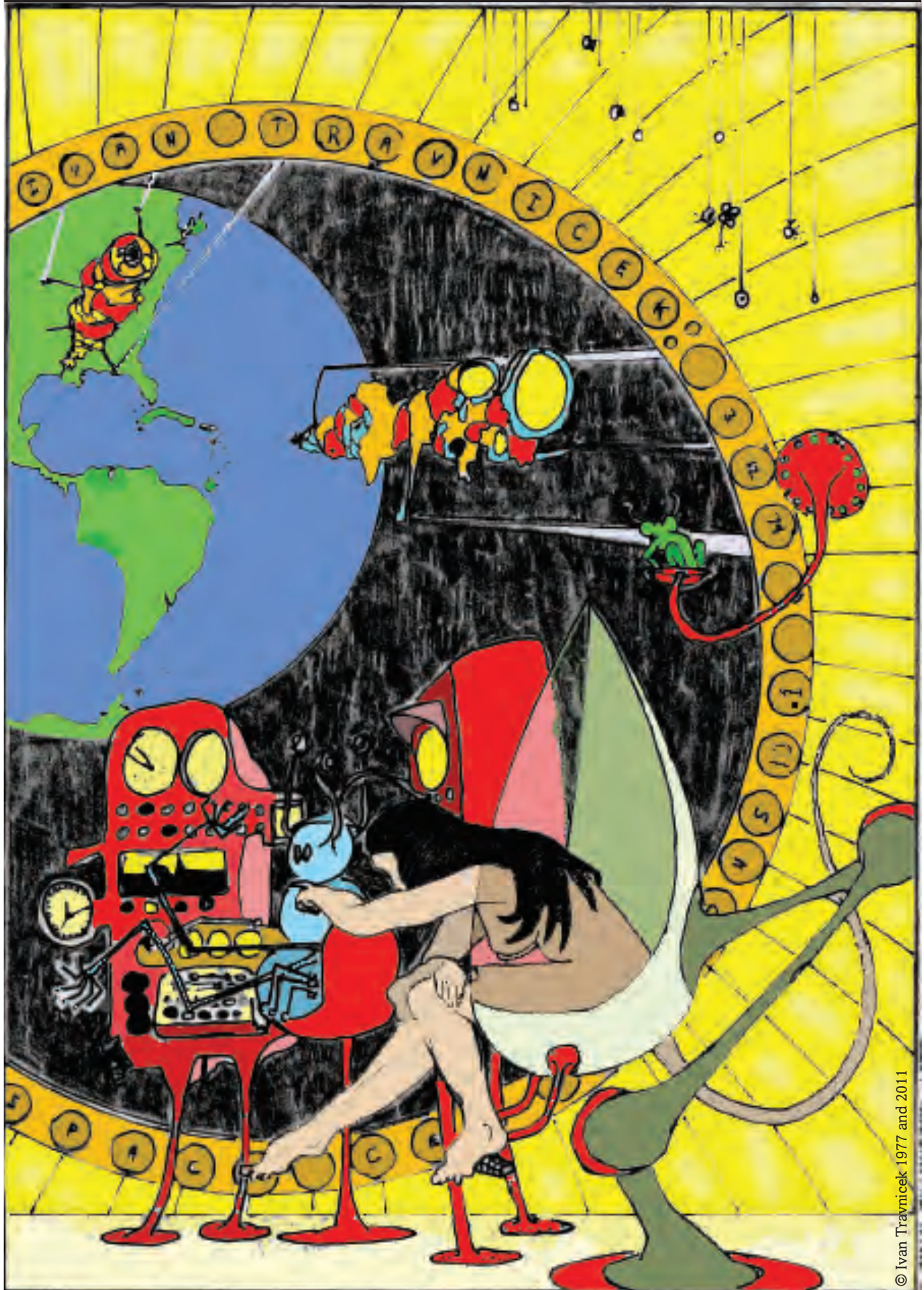


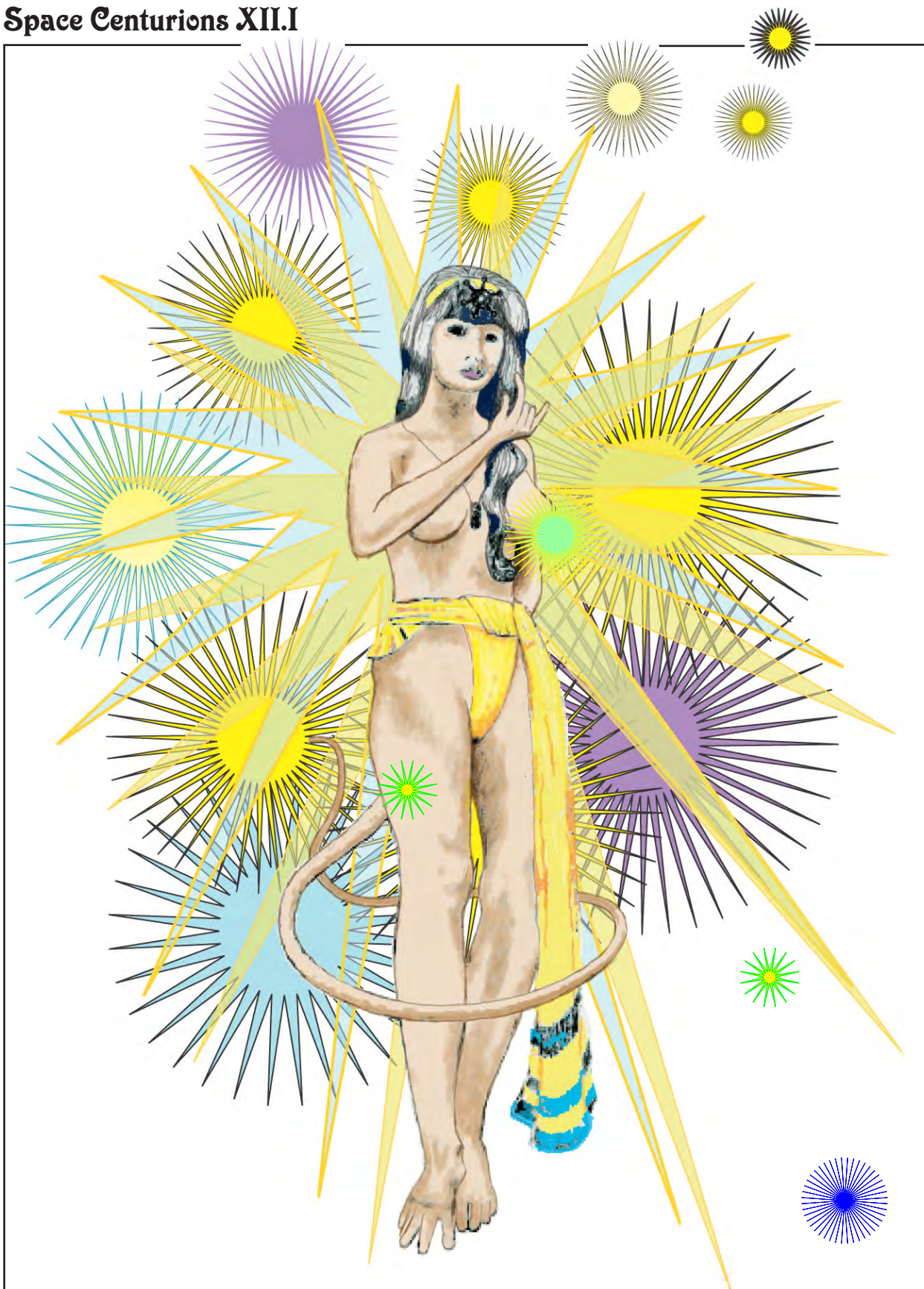
Space Centurions XII.I By Ivan Travnicek



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Lanakuli Lorali, a Viviparan Rein-M'tuh telepath, taps an Improbolodian Hoptite on the carapace as their Quasaurian Heavy Battlecruiser joins two Pt Super Dreadnoughts in battle. A Qw IT is on pedestal, right.

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A powerful characteristic of Lanakuli Lorali, a Rein-M'tuh Telepath, is her ability to project mind and body instantly to a distant location, frequently just before her swift battlecruiser is destroyed by the paranoiac Eli.

Dedication

This book is dedicated to the people of Czechoslovakia who came to Nebraska in the nineteenth century, for it is they who settled the land that nurtured me and planted the flowers that caressed my soul with their beauty. Soon I shall join them, there on a far rise, known as Killian's Hill Cemetery.

Space Centurions XII.I

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Ivan Trávníček in about 1980 when he was the Sunday Editor of the Albuquerque Journal. A graduate of the University of Nebraska, he served in the U.S. Navy from 1964 to 1968. Among other stations, he spent a year in Guantanamo, Cuba, and later a year in South Vietnam (1966-67) as coxswain of PBR-79. He is a very modestly decorated veteran of approximately 70 combat patrols on the Mekong River. He began a career in newspaper journalism in 1969, which lasted until retirement in 1997. He moved to a farm in eastern Nebraska where he tended to his 40 pet geese, each of which had a name.

Chapter 1

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Homo Superior

&

The Stars

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Conception

Lanakuli Sirikit was pregnant with identical triplets. She would lay the three large brown eggs in just a couple of weeks. They would come one day apart, as was normal for the ovoviviparous woman, and that is when her light-skinned husband, Lanakuli Arant, would discover that he was not the father. The color of the soft-shelled eggs would be wrong. The thought of it made her tail tie itself into an overhand knot, as it was wont to do when she grew nervous, and lately that was often. There had to be a way out of this predicament, she told herself worriedly, or else her marriage was over.

Grey Boolley was the father. Sirikit could not decide if he was a predator or just an over-ardent lover. Certainly, Boolley was incredibly charming and could make Sirikit submit to his pleasures whenever he pleased, despite her protestations, but that did not make her enjoy his advances any less. She had met him surfing off Black's Beach near San Diego. The beach favored by nudists. She loved his brilliant mind and was very impressed with his highly successful naval career. He first had been smitten strictly by what her lack of clothes revealed, and only later by her personality.

"You're just a common sewer slut!" roared her husband when he discovered the results of genetic tests that revealed Boolley, a most handsome quatoon, to be the father. Arant had been very much looking forward to his first children with the beautiful and bounteous Sirikit. The discovery that the goose had cuckolded the gander and made him the legal father of three about-to-arrive bastards was just too much for the usually calm and caring university professor of ancient Central American cultures.

"I'm sorry. I really am!" the brown-eyed woman told her tweedy husband with the ferociously wagging eyebrows. "I thought maybe you really were the father, so I had the genetic tests for dyspepsia. You know how that bothers you so much."

"You want me to support another man's children? All three of them?" He bellowed in a rage. That he had stolen Sirikit's heart while she was married to Arant's half-brother hardly mattered to him, or that his own half-sister was bearing her fifth child, not her husband's but her half-brother's, and that if her husband had gained the truth of the four children he was already so proudly raising as his own, he probably would have shortened Arant's life span to such an extent that little of this gnarled family tree would have branched to its present expansiveness.

"You weren't supposed to know the results. That's what you get for opening my mail," she whimpered and looked at him reproachfully. "Besides, I thought maybe it would be your sperm that fertilized my eggs, not Boolley's."

"You commit adultery and accuse me of opening your mail?" He was trembling with rage, scorn and indignity. Arant's eyes bulged and his bushy eyebrows shot through with premature gray rose uncertainly toward the heavens. He was surprised at his riptide emotions. Stealing a woman from his brother was sensible, but having a stranger mate with his wife was quite another well beyond the boundaries of civilized morality, at least according to his not particularly unique interpretation of those morals.

"I had no way of knowing who the father would be. There were so many of them. . . ." She trailed off.

The ongoing genetic alterations to the physical body of Homo superior were an obvious improvement, especially in altering women from bearing the full burdens of mammalian pregnancy and messy live birth to the ovoviviparous method of some reptiles where eggs

partially develop within the maternal body and hatch some time after they are laid. But moral growth had not developed apace, and the mating instinct that flitted from nest to nest was more common than uncommon, even when compared to the predecessor *Homo sapiens sapiens*.

"Get an abortion," he screamed in her face. "Fry those devilish eggs on a skillet and I'll eat them for breakfast! Tomorrow!"

"You're worse than an abortionist," she said. "You're a cannibal."

"What's worse?" He shouted. "A bastard or a faithless bitch?"

"A bastard who grew up to eat his own children," she whimpered. "Besides, you are against abortion, so don't tell me to get one."

Arant was so enraged that words refused to come from his mouth. He squeaked. His eyes narrowed and his eyebrows descended like a curtain in a hurry to end a miserable one-act play. Ongoing genetic alterations to "improve" the human race had resulted in jealous and faithless men and women who in all their physically enhanced and altered state had matched the men in promiscuity.

"Last year I bombed an abortion clinic because even a spontaneous miscarriage is a capital offense. But what you've done is worse than premeditated murder. You've betrayed me! So tomorrow I will pay to kill off those three bastards of yours and whoever!"

"ooOOoo! Aren't you the flexible one when it comes to morals!"

"Morality is whatever I say it is!" He shouted as he shoved her up against a wall and slapped her one time for each bastard.

"They are mine and I will love them," she said, sobbing, her long black hair in a swirl over her face and shoulders. "You cannot ask me to destroy my own eggs!"

Her words were proof to her husband that maybe she really did love Grey Boolley more than her husband, or at least she loved the product of her tryst more than she valued the marriage. She had issued a searing slap to his pride and a fatal wound to his deep love for his wife. "They are not mine," Arant yelled in her face as his anger grew dangerously controllable. "And I will not support them!"

He punched her with all his strength in the swell of the belly that concealed another man's seeds. Sirikit slumped unconscious to the floor of the bungalow high on the cliff above Laguna Beach, California. A drool lolled from slack cupid's bow lips of the incomparably beautiful woman with the heart-shaped face. The spicy odor of eucalyptus trees swept in through the door that Arant left open as he stormed out, still yelling horrid obscenities at his senseless wife and temporary life partner.

Grey Boolley, a far more faithless man than Arant, truly loved Sirikit, the 20-year-old South Carolinian with the high-brow Southern accent, just like he loved his seven other girlfriends, five of them married. When Sirikit called him and reported her husband's violence, he rushed over to her house. Boolley found Sirikit still groggy and lying on the floor, clutching the phone, receiver off the hook, the hangup warning squawking, "Geek, geek, geek!" At her long-toed feet with the opposable big toe was a miscarried and crushed egg splashed across the floor through which her tail limply zig-zagged. Already Boolley could see early formation of a human form in the broken yolk.

"Damn him!" Boolley swore. "That was my child he murdered!"

"It was me he was mad at," Sirikit groaned. There was something about her high cheekbones and one-eighth Catawba Indian blood that excited him like countless other women,

although in his heart he knew it was like few other women.

“No husband has a right to do that to any of my girlfriends,” he said angrily.

“Why is it,” she asked Boolley, who gave her a blank look, “that it is always man who determines the morality of woman?”

Events moved quickly after Sirikit miscarried one of her three fertile eggs. Arant divorced her in one week flat. It was so fast she didn’t even have time to argue for a fair settlement. No judge would have allowed her any of the assets of the marriage anyway because of her blatantly adulterous behavior. Even in California of the year 2710 a.d., such behavior was always met with powerful condemnation, social ostracization and disowning by family. For genus *Homo sapiens superior*, the rooster remained cock-of-the-walk, especially when cuckolded.

The Pentaphrogonauticus

It was not as if Grey Boolley was a bum, Sirikit decided later. He was the captain of the Pentaphrogonauticus, humankind’s solution to crime and overpopulation. The Pentaphrogonauticus (five frogs in the water) was a starship set to leave Earth just two weeks after Sirikit’s fall from grace. Already on board were 22,000 condemned male criminals and perverts, 22,000 prostitutes and a scattering of officers possessed of terminal wanderlust. All were selected with great care by the notably corrupt and hedonistic Religious and Morality Police for the Greater Good of Society and Civilization. This nineteenth colonization ship launched from Earth would probably contain the nastiest bunch of colonists to travel across the stars since God was born.

The Five Frogs was a Noah’s ark on a grand scale. On board were embryonic representatives taken from every surviving life form left behind on Earth, including every virus, plague, bacterium or genetic disorder that science had identified and also an assortment of dinosaurs and other extinct life forms recovered from samples preserved in museums or from amber-preserved DNA. It was not that the voyagers wanted to be surrounded by familiar life forms once a new planet had been terraformed and colonized. That need was a deep one that could not be ignored, but it was more for other reasons. *Homo sapiens superior* did not evolve in a vacuum nor could he maintain his viability without other life forms in his environment. Man is a creature that cannot be long removed from the environment that gives him life. The colonists knew that, or at least the scientists and social engineers who designed the expedition knew it. There was another reason, as well: Any new environment might have many life forms instantly deadly to mankind. What better way to subdue this natural hostility than by bringing along your own natural allies and enemies that might prove to be equally deadly to the indigenous life forms? And that was twice true of the microscopic viruses and bacteria frozen into inaction in row after row after row of vials, flasks and glass containers stored along the outer walls of the cylindrical ship.

Boolley could not get any of his other girlfriends to join him on the one-way expedition to the stars.

“I’m married,” five of them protested.

“I love my husband,” two of those said.

Two others, unmarried, did not consider themselves prostitutes, so they quickly found other customers to support them in the style to which they were accustomed.

That left Sirikit, on the far side of bioengineered morals, to be jettisoned by her husband. In a fit of highly temporary depression, she succumbed to Boolley's persuasiveness and joined him aboard the Five Frogs. Just one week before she would have laid her remaining eggs, now reduced to identical twins, Boolley put her into a suspended animation tube, sang his favorite hymn "Rock of Ages" at the top of his voice, and froze her solid at nine degrees above absolute zero.

It was a fine September day on the beach in Laguna Beach when the four-mile-long Pentaphrogonauticus left its orbit near the moon and began its laborious struggle against the ensnaring gravitational pull of Earth and sun. Lanakuli Arant was teaching a class on the intricacies of Mayan hieroglyphics at the University of California, San Juan Capistrano. Arant did not see the faint glimmer in the morning sky as the tubelike, one-mile diameter Pentaphrogonauticus fired its powerful engines and slowly gained momentum toward the stars. He did not watch the holographic news that evening, nor did he read the continuous newspaper that extruded itself from a 3-D printer in his living room wall and plopped into a catch basket. The newspaper had animated talking headlines that described the departure of the starship Pentaphrogonauticus, but he was not listening to the babbling paper.

"I do not care," Arant yelled at one of the headlines. "Who the hell could care about a ship loaded with 44,000 perverts and prostitutes?"

But yet, the departure left his kitchen empty, his bed unmade, household objects stayed for days where he left them and in the refrigerator were two carrots rotting in the crisper where Lorali had left them weeks before. The house once so much a friendly haven against the world, the house that once echoed to the sound of his wife's laughter, the house with the three expectantly empty bassinets in a bedroom, now stood in silence, an enemy to its owner.

With a sudden shudder, he began to cry for his beloved Sirikit, the last passenger to gain passage on the Pentaphrogonauticus. In a kitchen cabinet was a quart of KaBlooie drain solvent. He chug-a-lugged nearly the whole thing and dropped to the floor. The empty container fell from his hand and skittered across the powder-blue ceramic tile and clanked against the stainless steel automatic food server. He died minutes later, the words "I loved you, Sirikit" on his acid-bubbling lips, more than 134 centuries before his ex-wife would awaken from the near-dead under a new sun.

13,300-Year Journey

Three seeds from the past carry the future of humankind. One of those seeds, an ancient fusion-drive colonization vessel, scarred and dusty, etches its immeasurably slow way through the Milky Way that is home to more than 100 billion visible stars. The ship is the tiniest mote lost in the vast nothingness that separates the middle arms of the magnificent spiral galaxy. It is early during the 161st century A.D.; the ship has been unlit and quiet for more than 133 centuries. The "immortal" people who built the ship and waved goodbye to it have long since succumbed to the advance of time. Self-repairing machinery of jewel-like precision with seven layers of backup redundancy works in silent perfection to keep alive the ship's sleeping cargo of 44,000 humans.

Two other seeds lie within the rotating tubular hull of the colonization starship. Those seeds lie in a frost-covered suspended animation cylinder, deep within the rocklike form of Lanakuli Sirikit. She has not drawn a breath, seen the ocean or laughed at a merry joke for

more than 13,300 years.

It is just 300 years before the end of its journey and 6514 light years away from home, when the worn vessel passes through an invisible area of instability, undetectable by the ship's instruments. A microscopic black hole is connected to an unseen wormhole that ends in an invisible white hole. An alternate universe, one ever so slightly askew from the one that spawned the ship, is entered. It looks no different from the one just departed; indeed, familiar stars continue to appear in all their proper places. Even the sentient beings look the same, but if any mortal could have compared, a subtle change in history and manner would have been detectable. The 44,000 colonists frozen into rock lost their crimes, perversions and diseases, but not their infidelities, for that would be to remove a characteristic element of being human.

Just as one universe is but a mote in an infinite array of universes, so it is with one timeline that begins and ends and interacts with an infinite array of other timelines like a vast neuronal network of God's infinite brain. The synapses fire randomly like the sparkle lights on a Christmas tree. Every neuronal firing in the endless network reveals the interaction of one timeline with another. The smallest movement of the Pentaphrogonauticus holds equal probability with a large movement spanning centuries that a timeline, or many of them, will be exited and an equal number entered. So it is that the starship presses on through the unexplored void toward its uncertain destination.

The journey from Earth and the nearby Orion Arm of the Milky Way galaxy to the next arm inward from the galactic center takes 13,325 years, which is traveled at an average speed of approximately half the speed of light, not counting the acceleration and deceleration that takes more than a year at either end of the trip. On the 14th day of the second month of the year 16,035 A.D. the whimsically named Pentaphrogonauticus settles into an orbit around a yellow-orange G8-class star that comes to be known as Rana Catesbeina (Bullfrog), or simply Rana. The star is a member of a tiny cluster of loosely linked stars of insignificant luminosity lying 6662 light years from home in the general direction of Eta Carinae, NGC 3372, which is in the fertile Carina Arm of the galaxy.

Arrival at Rana Catesbeina

Grey Boolley is automatically awakened by creaky old machinery – most often by mechanisms one or two layers deep into the ship's redundancy, and just once the full seven levels deep – a year before his ship makes starfall. He awakens 200 of his crew. Two of them are dead for reasons unknown and he jettisons the thawed bodies into space. Sewage ejected from the ship forms a halo of smaller frozen waste matter that escorts the crew members on their plunge into the star-twinkling blackness. Now that the journey is nearly complete, the rigidly obsessive need to recycle everything, including bodies, is no longer necessary, although there was little consumed by the sleeping metal cocoon.

Boolley leaves Lanakuli Sirikit frozen. She is not a part of the working crew preparing for planetfall. Besides that, he has set his wandering eye on a pretty little astrogator, Hessy Snipes, whose psychiatrist husband remains in his suspended animation capsule. The neurotic astrogator is lonely and far from home and Boolley is powerful, charismatic and full of grandiose promises. It is because of Hessy that he abolishes all laws and regulations against fraternization in the military or workplace. Their relationship becomes the stuff of considerable gossip but of remarkably little legend. The rest of the ship's cargo doesn't object

because frozen rocks don't complain.

A year is spent studying the Rana solar system. Sixteen planets are discovered. The outermost is actually a small brown dwarf star with several insignificant bodies orbiting the dying parent, itself suffering the geriatric effects of having burned for 10 billion years. The next two planets are found to be small and lifeless, the warmest temperature never crawling more than a few degrees above absolute zero. The next eight are comprised of a mixture of gas giants or smaller, volcanologically active planets devoid of life. The innermost pair of planets, one large and one small, are scorched by their near proximity to Rana. Planets three, four and five from Rana, each of similar size, climate and orbit, all teem with life unlit by any evident sign of higher intelligence. But then, not all signs of higher intelligence are easily detectable, even in those self-indulgently thought to have "higher intelligence."

Planets three, four and five, are named, respectively, Trimareum ("Tim"), Quadraoceanicus ("Quad"), and Pentaphrogonauticus. The latter is colloquially renamed Vivipara, partly because of reasons of xenosyllable-itis and partly to reflect the human race's re-engineered method of reproduction. Grey Boolley, an uncooperative renegade when it comes to the finer social skills, suggests that the first be named after the human solid waste byproduct, the second after the human liquid waste byproduct and the third after an obscene appellation for the mammalian method of conception. The board of governors vetoes that idea and, in a rare moment of standing up to the belligerent Boolley, suppresses the very fact that such a suggestion had been made.

Vivipara appears to be the most attractive planet, the dominant features being a heavy sprinkling of jungle islands around the 32,000-mile equator and two huge polar icecaps that narrow the tropical band to just 5000 miles wide. Half of the colonists, 22,000 strong, choose to make their new home here. The remaining 22,000 human immigrants are divided between Tim and Quad. The year 16,036 a.d. marks the year colonization of the three planets begins and also marks the beginning of the end for numerous indigenous life forms found on each of the planets.

Grey Boolley changes his title the moment he sets foot on Vivipara from ship's captain, a position of utter dictatorial powers, to that of king, a position of utter dictatorial powers. He declares himself to be the first among Oala-Uinsil, the caste of high royalty. He declares that all his descendants shall also be Oala-Uinsil and that his eldest child born on Vivipara shall be his successor. His detractors blame much of Boolley's bouncy vigor on Vivipara having more than 19 percent oxygen in its atmosphere, versus the 15 percent left behind on Earth, and very slightly less gravity.

Boolley and Hussy have a male child during that first year. It is the first child whom Boolley claims as his own, despite the fact that his trail of romance is strewn with bastards, although none of them acknowledged to be on Vivipara. The presumptuous king declares the child, named Woolley, to be his heir to the throne of Vivipara. The growing baby, as soon as he can crawl on all fours, begins to show some of his father's propensity for wandering and makes his way out into a busy intersection and is run over and killed by a scullery truck. Too young to have been recorded, the tot is irretrievably dead as to personality and claims to the throne. Hussy's husband remains frozen, by her request. She doesn't think he would be at all sorrowful about the death of his wife's bastard son, even if he was a prince.

Some of the first graves on Vivipara are filled by Boolley's detractors. The survivors build Boolley's paternalistic and slightly hedonistic society of perpetual war, multiple gods,

stupid slaves, indescribably beautiful women and carefully focused scientific research. Architecture becomes a mixture of ancient Aztec, Maya and Khmer.

Boolley loses interest in Hussy after their child is killed. He begins to womanize lavishly, much to Hussy's distress. He can be faulted for bad morals, perhaps, but certainly not for victimizing women. Not a single one of his conquests enters into an affair unwillingly with the king of Vivipara. The abandoned Hussy grows lonely and asks Boolley to thaw out her husband. "I'll never tell him what happened," she says.

"Right," he replies. "If there's one thing I don't need, it's yet another angry husband out there. I just wish they'd leave my girlfriends alone." Because of the sudden competition for Hussy's affections, he manages to fit her into his tight schedule with increasing frequency.

Mankind, ever the efficient reaper, sets to work killing off the indigenous life forms and replacing them with plants, animals, insects and diseases imported from Earth. In a few hundred years, fully half the plants and animals of Vivipara have become extinct, their ecological niches taken over by the newcomers. The result is a planet teeming with a new mix of life, some native, some imported, some intelligent, some semi-intelligent and all of it voraciously bent on devouring the competition.

As it evolves during the thousand years of explosive population growth after the colonists land, the human race expands to colonize the entire belt of jungled islands that necklace the watery planet at the equator. Land masses blessed with a warm climate are small, and war soon becomes the only way to keep the population in check. Alliances form in what becomes a permanent state of nautical hostility. Elaborate treaties and customs develop that allow the continual trading of territory and resources through combat and conquest, but prevents any country from attaining a decisive dominance. Victory might lead to peace, the junking of the magnificent warships and no checks on the population.

The passing of the young Woolley Boolley leaves Grey Boolley without an heir to the throne. The reduction of Hussy Snipes from being the prime target of much of Boolley's romantic energies leaves a void that the king of Vivipara is unable to fill with any of the dozens of women who so valiantly try. The void hastens his decision to thaw out Lanakuli Sirikit along with the last of the other star-faring humans on the Pentaphrogonauticus. It is thought that perhaps he is thinking of the pregnant Sirikit as the mother of an heir to the throne. Sirikit promptly lays an egg. Then another.

Boolley is delighted by the two brown eggs that their mother so carefully tends in their incubators. But, being a macho sort of galactic wanderer, the newly self-proclaimed king doesn't pay much attention to them. Tough guys pay lots of attention to the creation of babies and very little, if any, to the maintenance of those creations. Sirikit is another matter, however. Boolley seems to genuinely love her and even gives up five of his girlfriends upon her insistence. Two others, including the part-time Hussy, he keeps without telling Sirikit.

Grey Boolley's Waterloo

Despite his long vision, Grey Boolley leads a short life in a hot-blooded state, there being some justice in a barbaric world. In a moment of bad judgment, or is it soft-heartedness, he assents to Hussy Snipes' request that her husband be unfrozen. The offended chap shoots Boolley seventeen times at close range. Doesn't even nick Hussy Snipes, though her close proximity to the victim during one of her weekly visits makes that something of a marvel of accurate pistolry. Hussy is a bit saddened by this, because Boolley had promised her

just moments before that she was again to become the mother of a prince or princess. As it turns out, the promise does not result in an heir.

The irate husband, one Sammy Snipes, during his murder trial allows as to how he “fired in self-defense until I ran out of ammunition.” The imperial judge finds him not guilty. Says it was a misdemeanor homicide.

For all of his wounds, Boolley is a tough bird and takes several hours to die. Fifteen of the bullets fired by Snipes result in non-mortal wounds, although cumulatively they might have been sufficient to send the king to his final coronation. Another bullet, this one a hollowpoint, mushrooms in Boolley’s liver, destroying that vital organ, but not killing its owner as quickly as the sender might have liked. The seventeenth and final bullet is fired right into the forehead of the groaning Boolley at close range. A sometimes necessary chunk of his brain is destroyed, along with many of his memories and much of the personality of the charismatic leader of the human tribe on Vivipara. The bullet-riddled man instantly stops groaning. The naked Hessy runs screaming from the bedchamber of one of the nine men in her life that she truly loves. Almost immediately, she finds somebody else, but as kings are in rapidly diminishing supply, her catch is a pale shadow of a replacement.

Boolley dies four hours, twenty-one minutes and forty-five seconds after the last shot is fired. No medical science ever invented either before or after in the long history of humankind can repair brain matter turned to mush by the meat grinder of violence. Medical science, however, as practiced by the Kaminvoo of Vivipara, is capable of creating a new body from the DNA of the old, which the priesthood members do for their king, but in his eternal arrogance, Boolley had never felt the need to have his mind recorded. The Kaminvoo dutifully record what is left of Grey Boolley’s mind, memories and personality, but those are disjointed fragments, some of those shards as bright and brilliant as the original, but so many pieces are missing that the bits never add up to a recognizable whole. Several new Grey Boolley bodies are created in the cloning vats of the tattooed Kaminvoo, but none of those creations becomes a recognizable individual because of the incompleteness of the recordings of the original’s shattered mind.

The next king of Vivipara, Charles Louis Delacroix d’Chateaurenault, the one responsible for the disintegration of the human colony from an integrated whole to several warring nations, seeks to solidify his power by eradicating all vestiges of his predecessor. The mumbling Grey Boolley clones are destroyed. The several recordings of what was left of his mind, kept on platters of digitized information, are gathered and given to the new king, who breaks them all into little pieces and tosses them into the city’s cremation ovens. Just one of those recordings survives, secreted away on a back shelf of the National Library of Human Existence. Unmarked, it could belong to just any common member of royalty, which of course is what allows it to survive under a thin film of dust that eventually grows to a thick layer as the centuries pass until one day it is found by a Kaminvoo priest who calls himself Bless-a-JoJo.

Lanakuli Sirikit’s Exile

Lanakuli Sirikit mourns the loss of the man who had won her away from her husband and had taken her so many light years away from Earth. Worse, as the mother of the still egg-bound heir to the throne, she becomes a dangerous embarrassment to have around. D’Chateaurenault, somewhat taken by the young widow abandoned 6,662 light years distant

from her long-dead husband, rather uncharacteristically decides to spare her life, even as he devises a way to get her and her two unhatched daughters out of the way.

Lanakuli Sirikit is fed some knockout pills at a party and carried away by four muscular torture specialists unused to having to deal with a person who is not a client for their multifold and manifest skills. They gather up her two eggs from their incubators and toss the trio onto an orbital shuttlecraft and zip her and them into orbit around Vivipara. She and the eggs are returned to the nearly vacant Pentaphrogonauticus and once again frozen solid at nine degrees above absolute zero. She is returned to the rocklike state only a matter of a couple of months after she had been thawed out by Grey Boolley.

"I didn't kill them all because maybe one day our country will need another Grey Boolley," d'Chateaurenault explains to his chamberlain.

"I should think that our country will never need the likes of him again," the chamberlain replies carefully.

"Oh, well," the king says, "I kind of liked Sirikit. Maybe I should have taken her on as queen."

"You could have used her two offspring, Grey Boolley's children, to legitimize your kingship?" The chamberlain inquires. "When you were done with the throne, of course, maybe they could have succeeded you?"

"The possibilities truly make my head hurt," the king exclaims. "Begone with you. I'll worry about all this a few centuries from now when I get bored with being king and decide to be a vegetable vendor, or something."

"A radish's chance for hell," mutters the chamberlain.

One hundred six years later, the last caretaker crewman is to be taken off the ship and the once-mighty vessel is abandoned to its slowly decaying orbit around Vivipara. Calculations indicate the colonization ship won't crash into the planet for at least a few thousand years. The crewman thaws out the last passenger and takes her and one of her eggs down to the now politically fragmented human colonies on Vivipara, the country of Zyga. The other egg is overlooked and left behind frozen but kept alive by automated suspended animation machinery.

Lanakuli Lorali Hatches

Lanakuli Sirikit's egg soon hatches after a much interrupted 48 unfrozen Viviparan days of mammalian gestation and another 63 days under an incubator substituting for what should have been a bird's fluffy, feathery bottom. The ellipsoidal eggs produced by the human female normally range in color from a light golden brown to a deep golden brown, the shell always closely matching the father's skin color. In this case, the egg was in the deep golden brown range, matching Grey Boolley's natural coloring. The satiny smooth egg, about 12 pounds and 12 inches long upon "birth," expands slightly in size and loses a third of its weight as the baby feeds on the nutrients through an umbilical cord attached to a membrane lining the inside of the shell. Lanakuli Lorali, conceived on Earth in adultery and frozen for 134 centuries as an unborn egg, is hatched under a new star on a strange planet in the year 16,142 a.d.

Sirikit is blissfully happy with her one hatchling and never makes mention of Lanakuli Lorali's missing sibling. Those who question Sirikit about the disappearance are told gently



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A hideous green Viviparan Bog Phrog warns the Rein M'tuh Lanakuli Loral: "Smythe is coming!"

by the new mother that “Lila will live forever.” Sirikit points to her head with her finger and says, “Here.”

Lorali’s mother, a buxom woman possessed of a startling feline grace and unusual physical symmetry, suckles the hatchling a few months before weaning. A few months more, and Lorali is scampering about her mother’s quarters like a long-tailed spider monkey, oblivious to the royal blood coursing through her veins. Sirikit never tells Lorali that the girl’s father is Grey Boolley. When she would ask of her father, the mother would just smile wanly and say, “Oh, he was Prince Machiavelli!”

As she grows toward maturity, Lorali becomes intrigued by the fact that she is one third of a set of identical triplets. She believes her mother that one of the three was lost on Earth as the result of a beating administered by her legal father, but the absence of Lila, a name her mother sometimes mentions, bothers Lorali no end. Her mother, before she, too, vanishes, seems to grow more distant and detached from reality. After a few years she won’t respond to Lorali’s questions about her sister, just smiles sweetly, and maybe taps her head with a finger or points to the sky.

Maybe it means that Lila is in heaven, Lorali decides, but the mystery is no closer to being resolved than the nature of heaven itself can be determined. For a 17-year-old girl of awakening and burgeoning psychic powers that would very soon rescue her from a short life as a Tom-Pan-Tli commoner to the enormously long life as a member of the pampered Rein-M’tuh subcaste of low royalty, the mystery of her sister’s absence becomes secondary to the excitement and intrigue of living in a castle minaret as the sometime-concubine of the war king of Zyga. The chop-tailed Bou-Bo slaves born of the cloning vats and chopping block served her every need. The Tori-Tor female warriors, also born of the cloning vats, carefully saw to her safety.

How could she know that Lila truly is amongst the stars or that Grey Boolley’s blood courses through her arteries? How could she know that one day she would be the sole hope of Homo Superior against the cruel alien hordes of Asohatra?

The Log of Homo Superior

The progress of the human race in the cosmic diary is largely filled with the entries of war and conquest. The greater the war the longer the entry and the greater the leap of human progress.

The Great Holocaust of 2026 is one of the most destructive entries in the human chapter and easily caused the greatest change to the human culture. Eighty per cent of the human race died and the remainder was seared in spirit. But scientific advances were great. Man finally turned with a single resolve toward the stars to escape the limited confines of his half-destroyed home.

The pressure to escape Earth compressed society into a rigid caste system and the final breakthrough in genetic manipulation – the dream of scientist and madman alike – made possible physical differentiation to suit both task and caste. Bits of genetic material, the nucleic acid DNA, had yielded to the scientific thrust even before The Great Holocaust and by 2130 human society had largely divided into three distinct groups: the vat grown clones who served as slaves and warriors, the ruling classes divided into nobles and priests, and the commoners who were condemned to preserve the gene pool unaltered.

Exploration of nearby stars became possible with the development of the first applications of suspended animation by the year 2650. But with the colonization of a few dozen stars it was here that human progress and conquest stalled. It was not possible to become a cohesive stellar empire with space ships caught in the vice of “real time.”

Society deteriorated. Constant genetic manipulation and the ennui of the spirit caused by the impenetrable vastness of space abraded the patina of civilization. The society of man became one of super science and Aztec barbarism. Knowledge and education became the privilege and refuge of a few and cruel animistic gods the lords of many. Wars became ritualized under elaborate codes of honor and much less expensive to mass numbers of people. Humanity, entered the second age of medieval honor laced with the poison of a religion oiled with sacrificial blood. It was an age that lasted more than 14,000 years among the loosely linked and pitifully few worlds colonized by mankind.

But a succession of events intersected just after the 170th century A.D. to give man the desire and tools with which to reach the depths of the galaxy. The puzzle of the multi-universe laws was solved, if not completely mastered. Suspended animation was perfected to allow essentially eternal preservation of biological organisms. Immortality elixirs became a privilege of the higher castes, allowing a life span limited only by the vagaries of war and fate. And in the year 17,030 A.D. a damaged starship with the remains of a humanoid crew was recovered from its decaying orbit around the erratic flickerings of a cepheid variable star. The odd starship's exotic “warp drive” engines opened the limitless vistas of the galaxy to the grasp of human greed. From the stone age village of a dozenfold colonized planets, man was suddenly presented with the modern metropolis of the entire galaxy.

Teeming with orbiting bodies, almost every main sequence star was found to harbor life. Life that was seeded by the complex molecular compounds found in space dust, comets and asteroids. Some stars nurtured more than one planet or moon with life and many stars were doubles, triples or part of a small swarm. Most of the life forms found were not intelligent. A minority were semi-sentient. A meager few had true intelligence, but had not developed a significant civilization. A single intelligent race, known only as the Asohatra, or “Assoes,”

had used their advanced technology to reach the stars and made contact with man. They were utterly hostile.

The scattered outposts of man were forced to gather up their survivors in huge cargo ships. Surviving warships of the decimated space navies protected these ships as they fled the galaxy via a previously undiscovered p-brane for a safer home. The dimension into which they vanished is not known. Their destination is a mystery solved only by their arrival. The time of their arrival is unknowable, so the year in which they fled becomes the year of their resurrection.

Each cargo ship and its small escort of warships arrives at an orange star in a nameless galaxy that eventually comes to be called the Phive Phrogs Galaxy. Planets are colonized, factories are established, clones are manufactured and plans for colonizing nearby stars are made. Civilization and society have survived the swarming Assoes and man's own violent nature.

A hush falls upon the human stage. The expectant stars wink their silent siren song. Man sets aside his bow and arrow technology and gathers his resources. The year is 17,041 A.D. Homo Superior, the Space Centurion, is about to step into the nave of an infinite cathedral of stars.



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"The Unimpeded Centipede"
Originally done with pencil on paper

Warp Drive

All interstellar travel is based off the Kerr-Reissner-Nordstrom solutions, or kerning, of the many-universe laws. But first, it must be understood that there are five types of time: **coordinate time**, that kept by the “Master Clock” of the human race at an earth-like planet circling a white dwarf star near the edge of the galaxy; **proper time**, which is that recorded on board a ship, **reverse time** where events precede cause; and **alternate time**, which is found in alternate universes and runs at speeds faster or slower than coordinate time. There also is **inexplicable time**, but as the name suggests, theorists have yet to develop either an explanation or an understanding of it.

A ship using warp drive first enters pre-warp, a ghost-like status where a ship enhances the time/space distortions of extreme gravity to the point where the ship itself becomes a tiny black hole and evaporates. The ship then passes into another universe, of which there are an infinite number. By precise calculations of the time loop, it is possible to re-enter the universe from which it came one year after departure, which is the safe minimum.

The one-year delay is set by custom forced by necessity. Re-entry to the universe from which a ship came at a date prior to departure changes a ship to anti-matter, which is totally antithetical to any form of “real” matter. The paradoxes of arrival before departure alone would be unsolvable, but the cataclysmic aversion that matter holds for anti-matter make the paradoxes more philosophical than real.

The consumption of ship-board proper time during each warp jump is prodigious, however. Proper time consumption is a multiple of 1,100 years times the distance moved in multiples of parsecs. One parsec (3.26 light years) is the smallest unit on the star chart. For example, if a ship is to move four star chart squares (4 parsecs or about 13 light years) it will spend $4 \times 1,100$ or 4,400 years in an alternate universe. The “fastest” ship can travel 10 star squares (10 parsecs) per warp, which consumes 11,000 years of proper time.

Life must be preserved on a ship that might consume as much as 11,000 years of proper time per jump and hundreds of thousands of years during the ship’s service life. Such long periods of time mean that the life preservation equipment necessary for suspended animation will consume large amounts of energy, a precious commodity on a space ship. Energy consumed is a function of the number of persons preserved multiplied by time. The number of persons preserved increases with the size and/or costliness of a ship. The “speed” of a ship is really limited by the ability to preserve itself and its crew through the millenia.

The cloned crew becomes an expendable commodity. It is cheaper to recreate than to preserve. So with each warp jump, the present crew is confined to a special section of a ship, called the Methuselah Chamber, and left to die comfortably at the advanced age of 4 years. When a ship approaches its destination to within a year of ship-time, automatic machinery clones a whole new crew, fresh out of the vat.

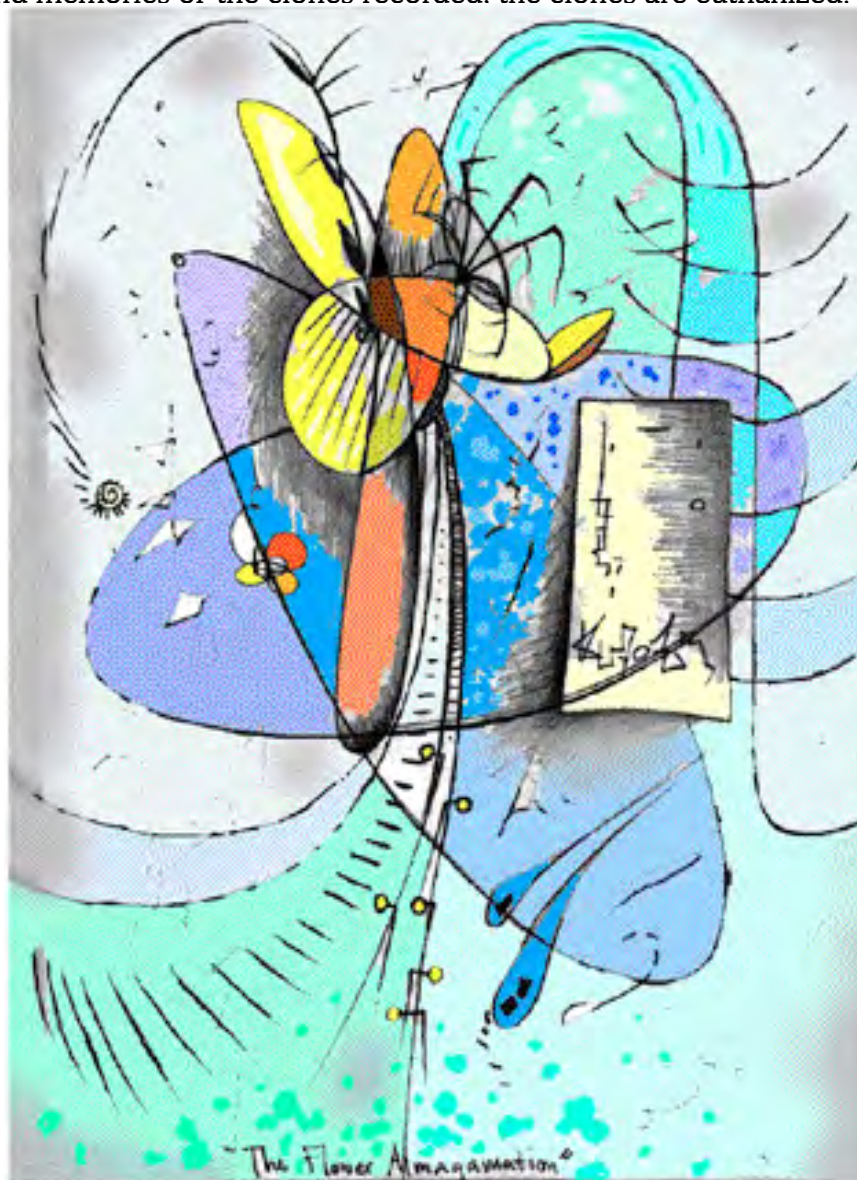
This procedure leads to a number of strange events; for example, a warship that warps many times from star to star during the course of its life consumes only a few years of “Master Clock” time, and many thousands of years of ship-borne proper time. The captain and executive officer are placed in suspended animation and will experience only the “Master Clock” time even though their bodies exist for the same thousands of years the ship does. A ship may have hundreds of complete crews cloned, one crew for each time the ship warps into synchronization with the “Master Clock,” hence the term warping in.

A clone crew always is made up of the same basic types. An entire crew might be made up of only a few types of clone repeated over and over for each warp jump. Type Adeline might make up the engines crew. Type Beulah might belong to the astro-navigation crew and Type Clementine to a particular weapon system. If a particular type of tactical situation is expected at the end of a warp jump, dozens of one type of clone best suited for that situation will be created.

The experience of previous clones of a type who have served the ship between prior warp jumps is preserved on osmium-alloy ribbons and programmed into new clones of that type. Each clone will possess an enormously rich life experience, although the mind possessing it is only of transitory existence. Each clone might have an operational career of only a few days, sandwiched between warp jumps. Immediately after a ship begins a warp jump and the minds and memories of the clones recorded, the clones are euthanized. A clone will spend short life with a memory many short periods duty, but none of dying. The biological remains of dead clone are eviscerated, distilled and stored.

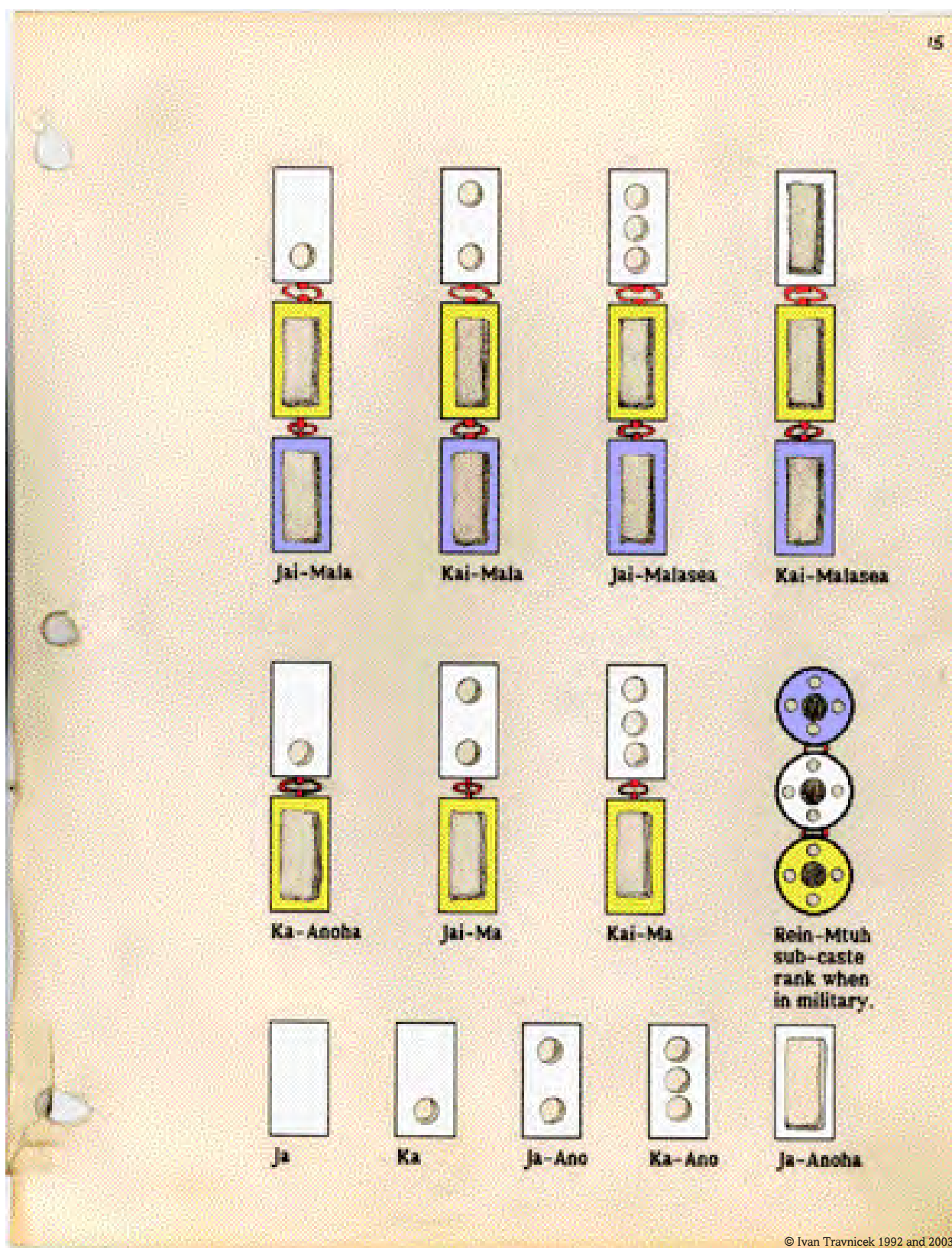
When a ship visits any civilized planet all osmium memory ribbons for each clone type are transcribed, after editing to eliminate the mundane, into a library retained shipboard use. new and updated memory ribbon is then available for each new clone. this method libraries and clones become a history of the travels of many ships of the empire and of many clones. massive fund of starfaring experience becomes the trust of each living clone.

There is no tomorrow because tomorrow for-ever. There is only the past engraved on osmium ribbons.



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"The Flower Amalgamation"
Originally done in Painter 6.0



Rank pendants as depicted by Lanakuli Lorali on a page copied from her notebook after her first death. The pendants are made of silver, gold and blue titanium. Starting with Kai-Malasea (upper right), ranks correspond to Admiral, Vice Admiral, Rear Admiral, Commodore, Captain First Rank, Captain Second Rank, Captain Third Rank, Commander, Lieutenant Commander, Lieutenant, Lieutenant Junior Grade and Ensign (lower left). Members of the Rein-M'tuh subcaste of low royalty, such as Lanakuli Lorali, are great psychics.

Genesis

Varying amounts of credit for the development and playtesting of the first eight versions of Space Centurions during the 1970s go to: John Koning (deceased), Stan Wrobel, Chuck Liebenauer, John Smythe and his brother Jim, and David Cozad, all of the Youngstown, Ohio, vicinity; Mike Rocamora, Edi Birsan and Bob Komada of New York City; my cousin, John Beranek of Morse Bluff, Nebraska, a fellow dreamer for decades; Richard Giberson (deceased), Bob Barton and Walter Brink, all of Amarillo, Texas; Kenneth G. Ray and his friends when he was living in Santa Monica, California; and Stuart Long, a one-time fellow copy editor at The Lincoln Star newspaper in Nebraska.

Space Centurions 21 is largely my own work helped along by many brainstorming sessions with John Beranek, John Smythe, Frank Suchar and David Cozad. Unfortunately, one of the players of earlier versions of the game said he would sooner commit suicide than be enticed into playing “that game” again!

SC I was a face-to face (FTF) game developed and played in 1969 and 1970 as a reaction to the self-imagined inadequacies of a game called “Lensman.” SC II was an abortive play-by-mail (PBM) game developed in 1970. SC III was an expansion of SC II and was printed in the January 1971 issue of Spartan International magazine. Many modifications were made as the result of further playtesting beginning in April 1971, leading to the creation of SC IV. SC III and SC IV overworked the referee to such an extent as to be nearly unplayable. An early version of SC V was printed by Spartan International in the Winter 1972 “Spartan Simulation Gaming Journal.” Further playtesting and development led to the final version of SC V published in 1974 by Spartan International. SC V was successful and was played by various groups around the country.

SC 6 was a radical adjustment of SC V to lessen the work load on the referee. Moves were limited to only one week per mailing cycle and the map was shrunk to 40 X 40 star squares. The game was limited and unimaginative in the author’s view, and a test game was ended after one of the four players vanished after only three mailing cycles had been completed. The player evidently shared the referee’s feelings about the game!

SC VII was begun about 10 January 1974. The rules were generally complete by the end of 1976. SC VII was basically SC V with the addition of more galactic features and numerous small adjustments to the rules. Although the game was an improvement over SC V it still had the fault of overworking the referee.

SC VIII was an expansion, modification and complete rewrite of SC VII to incorporate lessons learned during extensive play testing. Preliminary work began in October 1975, final drafting began in July 1976. SC VIII greatly expanded the diversity of celestial hazards, modified the ships chart and increased costs. The economic system was adjusted and star output changed. To cut the referee work load, a severe cost was placed on moving fleets. The size of the map was quadrupled to magnify the problems of interstellar distances. Space Centurions VIII lapsed into obscurity by the end of 1980.

The 22-year somnolence of Space Centurions saw the rise of computer games and the near demise of board and PBM games on the North American continent. Society’s increasing emphasis on family activities and togetherness early in the 21st century have fostered a resurgence of board games. Then one day this old man, creaky of joint, rheumy of eye, arthritic, feeble of heart, half deaf, half bald and possessed of the multitudinous

debilitating effects of old age, reached with trembling hands toward a low shelf where resided the SC VIII rule book and its rotting pages.

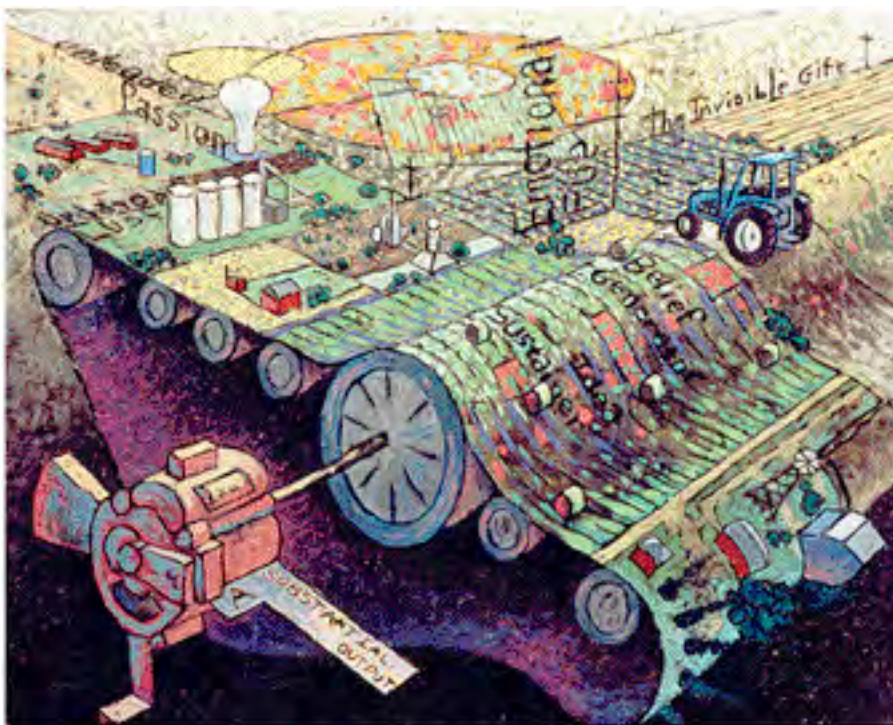
Space Centurions 9.0 was a massive transformation of the game into something easily playable FTF by two or more players or PBM by any number of players. It was felt that *all* the major limitations that once fettered this game were solved with the spring 2002 rewrite. The size of the map was reduced to a manageable scope and depicts just a tiny portion of a galaxy instead of a galaxy as a whole. Some degree of three-dimensionality was introduced to the star chart by the creation of a crazy-angles interconnectedness of the various map sections that results in an assemblage that might be likened to a Calder mobile. The number of stars was 820. The number of moving fleets was reduced to a manageable size by requiring players to build expensive mining ships to gather warp juice, which is a rare and limited commodity that allows ships to travel quickly among the stars. Some new economic concepts were introduced.

Space Centurions 10 was another major advance, this time limited to a huge expansion and revision of the economic structure of the game. This rewrite was done in March 2003. A new map with approximately 1000 stars was created and many more color illustrations were added.

By late 2003 the game had grown and morphed to version 11,

which included many new technological advancements and yet another map. The new map starts with a parallel universe and expands to a lo-o-o-o-ng gas cloud chimney that contains a rich star stream that eventually leads to NGC-700,000.

It is unlikely that Space Centurions XII of 2007 will be advanced beyond its present state by the original author because of an incurable and terminal disease. Younger minds and steadier hands will propel the game into the future over the Internet and ever advancing computer technology. It will be with great interest that I watch the evolution of the game through the ages as my spirit roams the stars with my imaginary ships until the end of time. Or perhaps it will be from my gravesite on a sun splashed hill overlooking the Platte River a few miles west of Morse Bluff, Nebraska. My mortal return to the sod will be near where my ancestors first tilled the virgin prairie. Or finally, perhaps I will return as a grasshopper.



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"Drive," originally done in oil on canvas. An interstellar empire's economy.

Chapter 2

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The Blight of the Fumblebee

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The Blight of the Fumblebee

Your small fleet is all that remains of a puny stellar empire. Your home star is a burning clinker that smudges its solar system with the smoky embers of your race's dreams and aspirations. The dozen habitable planets that once made up your insignificant empire have been effortlessly assimilated by hostile alien hordes that descended upon your hapless citizens like the 666 hobgoblins from hell.

From the shattered remains of defeat, you manage to gather the surviving members of your race. Your ships flee at best speed away from the ruins of your past. Your astrogators find a p brane near a microquasar's black hole, which transports your fleet intact into another time, into another galaxy and into another of the infinity of parallel universes. There is no way to determine if your fleet is just one gluon away from its origin or if it is lost in time a quadrillion light years away and 900 quintillion dimensions removed from the time you last set your clock. The way home is lost; your glory is gone forever. There is only the future in an unimaginably distant galaxy.

Your astronomers examine nearby stars. Out of what appears to be an unusually serene stellar environment, except for a mysterious black hole, they determine that a nearby pentuple star may have a habitable planet orbiting a junior member of that system. Your astrogators assure you that they have plotted a safe course to this unnamed planet that holds the future for your race, because your equipment and resources will not allow a second chance to travel to another star. You are incredibly fortunate that this planet is an untouched utopia, a veritable paradise and a heaven-like haven for your woesotted race. God frowns ferociously as you begin to despoil this new eden.

Initial Placement

Ships are placed at a player's home star. Here are gamestart assets for each empire:

Home Star: 1 GU (p.81), 20 FY (p.82), unlimited shipbuilding capacity
1024 MT (p.81) in your IMLO Bank account (p.144; TA not developed)
8/S.1 (Flagship; speed 8 is a lost technology), 5/CS.2, 5/CS.3, all p.131
4/AA.4, 4/B.5, 4/C.6, 4/D.7, 4/E.8, all p.130, all are empty.

Note that speed 8 is a lost science, although it survives as a baffling technology on 1 ship. TAs 320-323 on p.212 must be developed to build new ships of speeds 7, 8, 9 or 10.

An empire produces enough warp juice (p.83) to power 4 fleets (any number of ships in a fleet) without the need of TAs 200, 200.2 and 200.4 Warp Juice Mining Module (p.174).

Home star locations for the map in Ch.18 are listed on p.328. These home stars are obscured by a gas cloud for the duration of a game and cannot be attacked by opponents.

The long map in Ch.3 places the 4 home stars at the Trinary stars located in Maps BB, DD, CC and EE, respectively. A gas cloud does not and never will obscure these stars. The initial **home stars must be relocated** before the end of the first Katun (Calendar, p.81) to the multiple stars located on the right edge of Map A. Your Map A home star may never be attacked or visited by other players.

A home star is moved by loading 16 FY and 1 newly purchased GU on 6-speed (or faster) merchants with cargo capacity (p.130) totaling 17 GU. The 4 excess FY and 1 GU are left behind at the old home star, which remains as a production center star with 4 FY (can be increased to 12 FY at time of departure). TAs are not researched during Cycoms a home star is in transit. The new home star functions normally the Cycom after re-establishment.

How to Start a Game

The approximate order of steps for a player to start a game are:

1. Read rules.
2. Proceed to step 3 or toss rule book into the trash.
3. Assemble map using pages 30-35.
4. Find one or more opponents.
5. **First Cycom.** Name your empire. Look up meaning of Cycom, top of p.81.
6. Each player selects and names his home star (p.71, Multiple stars – home stars).
7. Each player places Pirate Empires (p.75), Amphibian Empires (p.76), Xenophobiacs (p.78) and Plague Planets (p.73) on the star chart. Place list of these hazards (p.106) in heavily sealed envelope and provide to each player for proof of honesty after game is over.
8. Generate first Cycom, which entails:
 - a. Make Income charts (pages 86, 88, 90, 92), which show nothing until end of first Cycom.
 - b. Make Treasury chart (p.94). Don't forget starting balance of 1024 MT.
 - c. Decide which TAs (starting on p.144) to purchase, which advisedly should be very few of the expensive ones for the first few Cycoms because top priority is to increase MT income through colonization (p.81, Megatons and Goodie Units).
 - d. Move one or more fleets to explore nearby stars (p.110, Navigation). Visit Main Sequence and Red and White Dwarf stars of interest because others stars require a ship to have 1 or more deflectors (see Deflector TAs, starting on p.163 and Cosmology p.28).
 - e. Provide list of warp ins to all other players (p.104 Warp Ripple Reports and p.111 Warp Ripples).
 - f. Start filling out fleet inventory record (p.98).
9. All players exchange warp ripple reports (p.104). Don't forget to list construction.
10. Each player tells all other players of contacts and of losses to hazards.
11. Plot strategy for next Cycom, which entails:
12. **Second Cycom.** Repeat steps 8 - 12, except that a player will have MT carryover income from the home star. Use gamestart MT and MT income for GU purchases to propel your tiny colonization effort. Identify Main Sequence star for development into production center. Develop near term strategy for TA development.
13. **Third Cycom.** As before, but now a player will have carryover income from 1-MT stars colonized during the second Cycom, as well as carryover income from the home star. Use MT for GU purchases and factories for second production center. Be aware that bulk of first Katun of game will be colonization, development and exploration.
14. **Subsequent Early Cycoms.** Important TAs are: TA-1 IMLO, which must join before end of 1st Katun, deflectors, mining ships, increased warp speed and at least 1 line of weapons development. You will find your wants greatly exceed your resources.

Cultural Diversity

All players must select the same culture. Players cannot select different cultures because cultural divergence by mid-game will unbalance economies and warmaking capabilities. See Supplement, p.411, for a modified and greatly expanded Cultural Diversity chart. Players may opt to ignore Cultural Diversity altogether. Choosing separate cultures is not advised because differences grow with time, condemning some empires to mediocrity by mid-game and worse before the end of a game.

Culture	Emphasis
Science (S)	Can develop up to 3 unrelated or in a series TAs per Cycom with no cost penalty. TA-66 Accelerated Research, p.158, does not apply.
Trade (T)	Every 10 MT (max. of 1400 MT) spent on trade returns 13 MT the following Cycom to your IMLO bank account, p.144. Trade starts at 100 MT the second Cycom of a game and can increase by 100 MT/ Cycom until the maximum is reached.
Communal (C)	Add 20% to gross income each Cycom All TA development costs are cut by 50%.
Zealotry (Z)	GU and FY are free; no IMLO loans allowed. Enemy GU cannot subvert your Under-the-Rock Pariah Cultures, p.151
Military (M)	TA-335 Double Gun Warships p.214 provided for free at gamestart and mounted on all appropriate warships for free. TA-383 Combined Range Finder/Loser provided for free at gamestart and mounted on all appropriate warships for free. Neither TA counts against a ship's limited number of TAs allowed.
Organized Crime (O)	IMLO loans are interest free – don't make 6th payment; IMLO subsidizes your empire by 10% of your gross income per Cycom.
Socialism (So)	TA development costs are free. IMLO loans are interest free – don't make 6th payment. Loans cannot be refinanced. TA-11 Governmental Efficiency, p.147, doesn't apply
Androidism (A)	Main Sequence Stars with 1 GU (no FY) produce 2-MT/year. Hyped output can't be captured. TAs 33-36 Orbital Hamlet/Village/City/ Metropolis, p.153, are free. TA-394 Enhanced Maneuverability Capability, p.232, is mounted free on all appropriate ships.
Isolationist (I)	May develop any number of Main Sequence Star production centers in each map section. TA-20 Slavery, p.150, is not an option, nor is TA-13 Osama's Curio Shoppe. All fortress TAs (TAs 400, 401, 420, 421, 1000 and 1001) are free at gamestart. TA-360 Solar System Defense Ship, p.221, is also a free TA at gamestart. Pay normal cost for everything. Can ally or conduct surprise attacks.

Economic Development Strategy

Goodie Units (GU). Each player must begin the economic development of their empire by dropping 1 GU (p.81) on nearby Main Sequence Stars. An early offensive tactic is to attack and neutralize enemy stars as soon as a 5-gun marauder deployed.

Factories (FY). Transport and install 2 FY (p.82) at an already colonized Main Sequence star, which turns the star into a production center. As finances allow, more factories will be built at the production center star. Production center stars become a high priority target, so must be limited in number and defended.

Bluu/Radd Mining. TA-215 Bluu Mining Module and TA-216 Radd Mining Module (pages 176 and 114) form a team that produces bluu/radd worth 10-MT/year or 40-MT/Cycom. Mining ships must be paired, one each at a Blue Giant, Blue Supergiant, Red Giant or Red Supergiant. These mining ships provide a good source of income because of the resources required to find and destroy them.

Asteroid Miner. The TA-220 Asteroid Miner (p.177) wanders around mining uncolonized Main Sequence Stars or unoccupied binary stars. Each AM produces 8-MT/Cycom and will pay for itself in 5 Cycoms. A reward of 20 MT is earned for each Asteroid Miner destroyed.

Hop Mining. The TA-210-211 Hyggyns Mining Ship (p.175) extracts a highly addictive drug that enhances worker productivity. Earn 1-MT/year from a Protostar or T Tauri star. A good source of income because they are difficult to destroy.

Planet Butcher. The TA-225-227 Planet Butcher series p.178 can earn substantial amounts of income and will pay for itself quickly. It will hardly bring praise to your empire because the butchering process makes a main sequence star worthless. Earns 60, 90 or 120 MT per star butchered, depending on mark of miner.

Diamond Trader. TA-230 Diamond Trader (p.179) generates 32-MT/Cycom per player for your empire. The MT are taken from other empires' income as a trade deficit. There is only 1 Exploding Star – Nebula and only 1 actively mining Diamond Trader in the game, so it will not be hard for hostile empires to find the Diamond Trader and destroy it.

Eden Project. The TA-240 Extreme Deification and Exploitation of Nirvana (Eden Project) (p.196) can cause a T Tauri star to produce 32-MT/year. High income but draws predators from all corners of the galaxy.

Archaeology. TA-260 Archaeology Research Craft – White and TA-261 Archaeology Research Craft – Red (p.198) combine to seek out technology at White Dwarf and Red Dwarf stars left behind by dead civilizations. Deployment of an ARW and ARR team can significantly accelerate an empire's economic and technological advancement.

Production Center Swapping. Players can act cooperatively to establish several production center stars (Main Sequence Stars only, not including TA-22 Under-the-Rock Pariah cultures, p.151) in a map section, despite the limitation described on page 72. The procedure is for Empire A to drop 1 GU and 2 or more FY on a star. Accompanying Empire B fleet immediately kills the GU and installs its own GU, thus stealing the star. Years 2, 3 and 4, repeat process. Since the stars are "stolen" there is no violation of the 1 production center star per map section limitation.

NGC-700,000. An empire that drops GU on the planet of value is rewarded with a payment of 50 MT per GU. No armed ships are allowed to warp into the star. The TA-900 series of Warp Gate cannot be used with a game played on the long map, p.29-65.

War Strategy

The best defense is a powerful offense. The empire that manages to develop the most effective attack against an opposing empire's economic base almost surely will win. TA-330 Raider (p.213) may play a central role in a successful attack plan. A high mark of the TA-600 series of Ambush Drives (p.306) also will be useful. Weapon systems that come in 26 marks should be studied carefully.

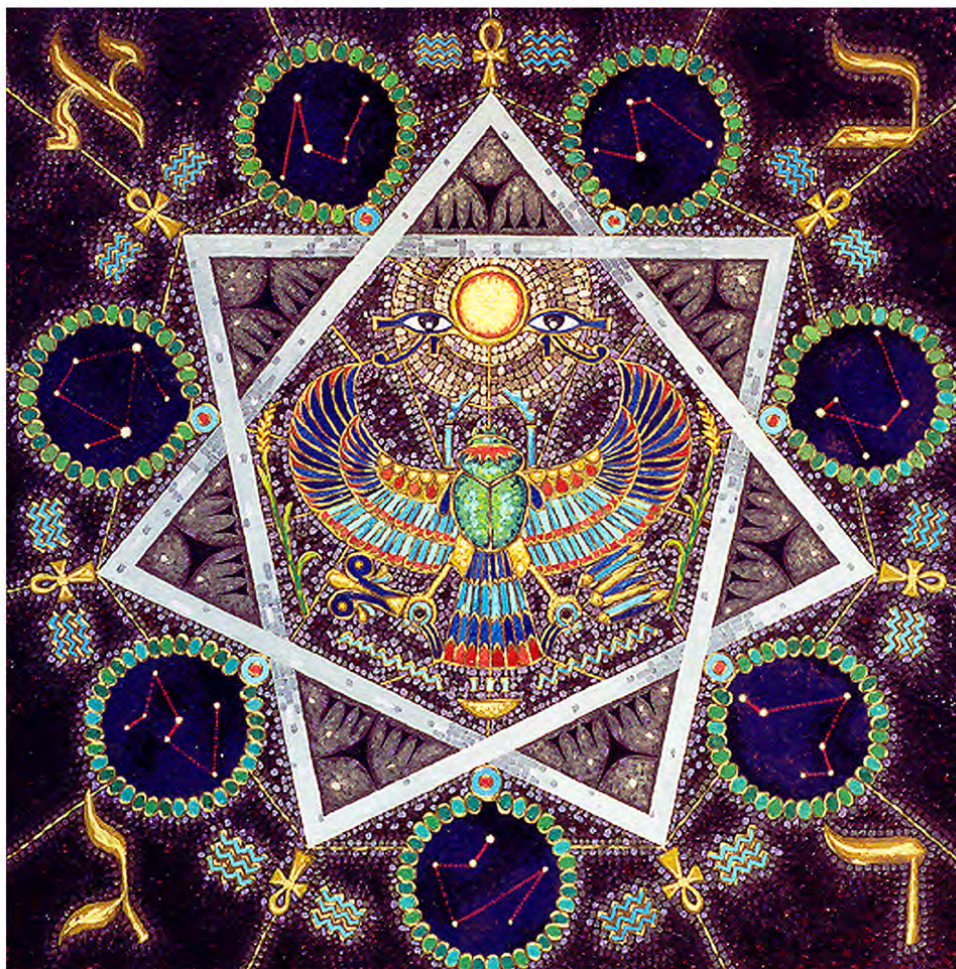
Important defensive weaponry includes:

- TA-360 Solar System Defense Ship (p.221)
- TA-377a-c Heliostatic Hellfire Machine (p.226)
- TA-400-401 Moon Fortress (pages 235-236)
- TA-420 Orbital Moon Fortress (p.238)
- TA-600 series of Ambush Drive (p.306)

Trading Goods and Services

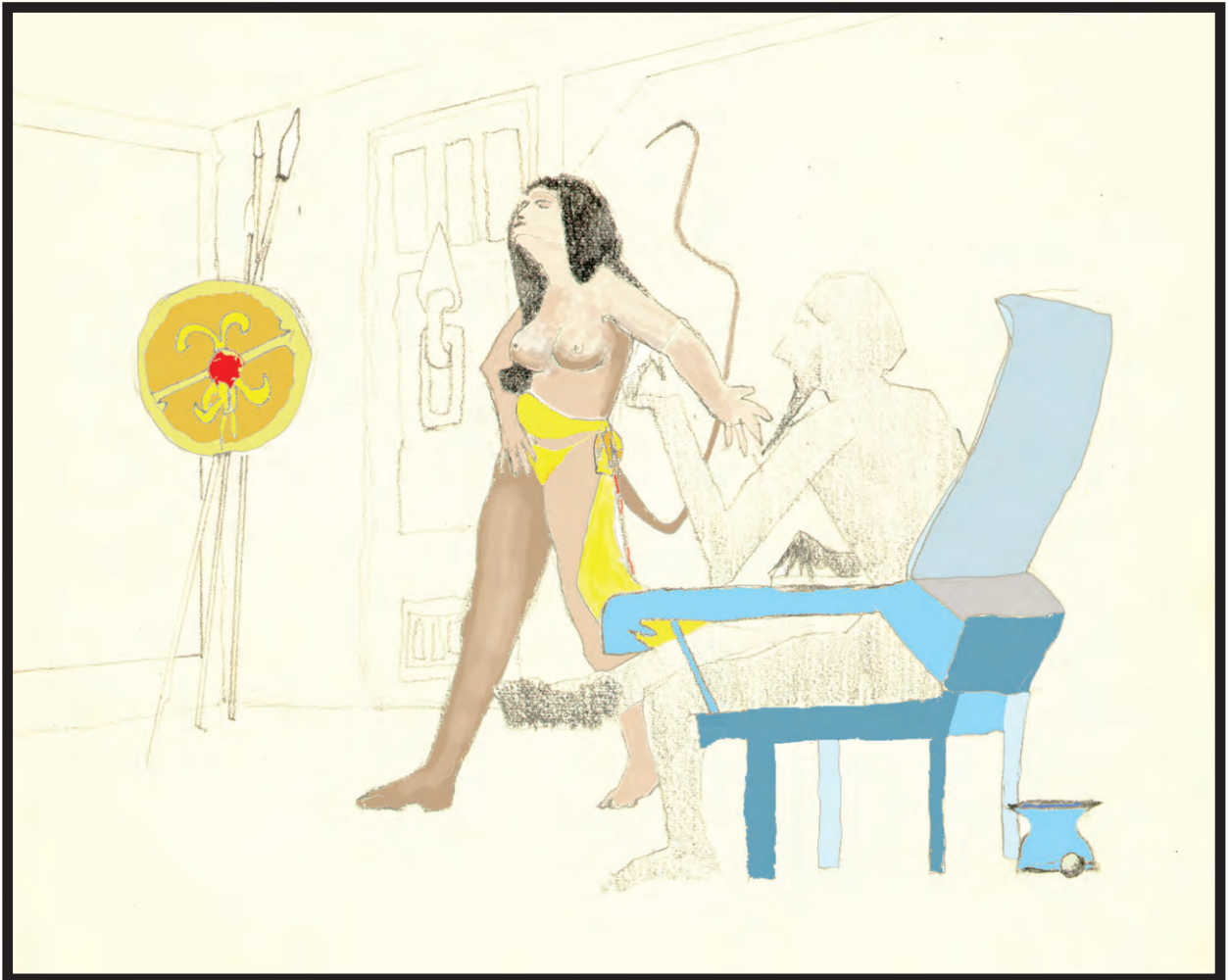
Ships may utilize another empire's production center stars if the 2 empires are friendly. Production center stars may build FY and GU for another empire. Ships may also be built for another empire, but only with TAs developed by both empires. Upgrading of a ship may be done only if TAs carried do not change in cost or mark. TA upgrading to a higher mark is not allowed unless both empires have the higher mark. Foreign ships may be junked.

Charges for these services are negotiable. Ships and TAs must be purchased at full price. Friendly empires may operate ships cooperatively, even in battle.



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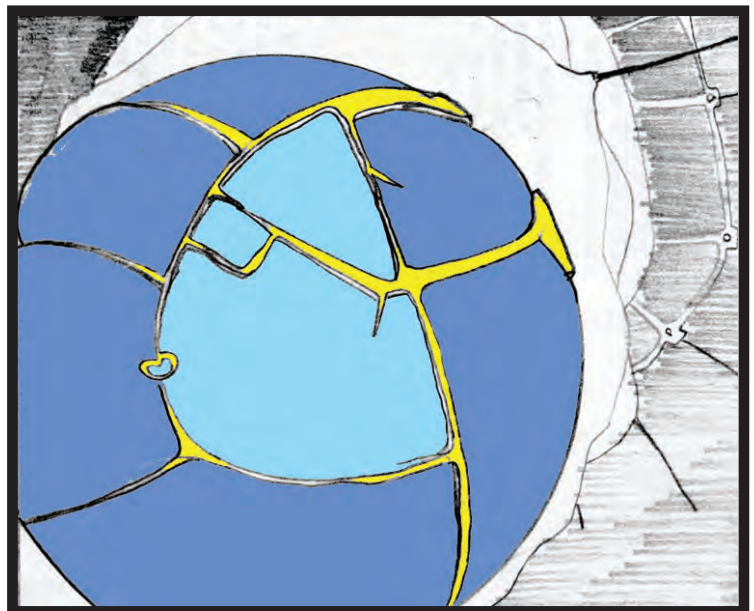
“The Dead God Is Reborn”
Originally done in Oil on Canvas



© Ivan Travnicek 1965 and 2003

The fabled Rein M'tuh Lanakuli Lorali turns down command of the new battlecruiser Olilli as Roa Can-Ek Barking Skull, the war king of Vivipara, inspects the repulsive green culture growing under his fingernails.

A cursory examination of the bridge bubble on the new battlecruiser Olilli reveals the reason the 900-year-old Lanakuli Lorali turned down command. The diamond-like glass of the ship's hull would not be able to resist the powerful guns of the dreaded Eli. Later, she accepted command of the Viviparan Empire's 4th Fleet of the Deep Space Centurions. She raised her flag on the new Daffodil Class super dreadnought Wikikali and warped into another dimension 987.314 quintillion years beyond the past.



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Chapter 3



Cosmology & The Map

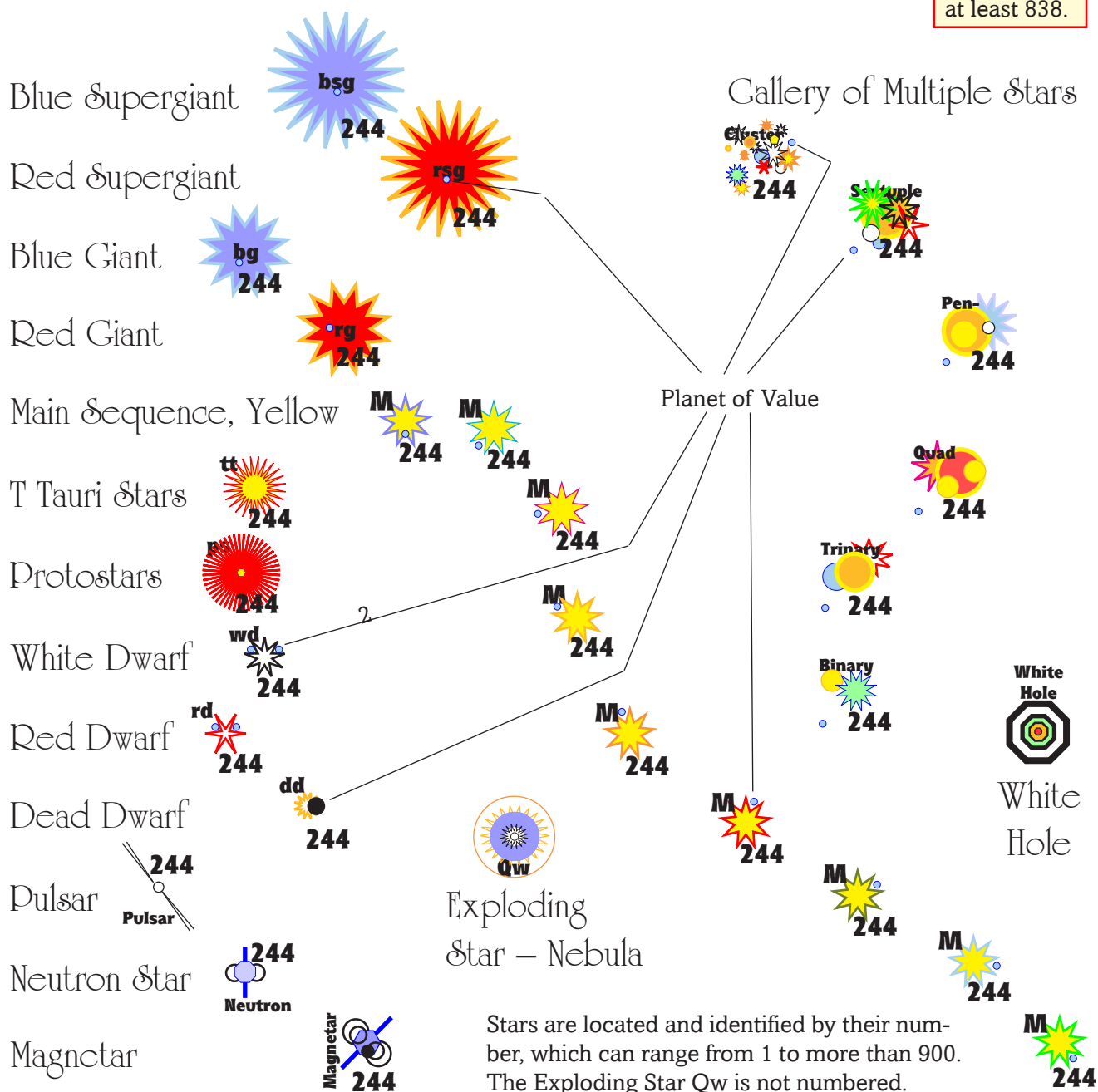


Cosmology for Race to NGC-700,000

Blue Supergiants: 25
 Red Supergiants: 23
 Blue Giants: 41
 Red Giants: 20
 Main Sequence: 313
 T Tauri Stars: 42
 Protostars: 170
 NGC-700,000: 1 (Main Sequence)

White Dwarfs: 53 (see p.297)
 Red Dwarfs: 27 (see p.297)
 Dead Dwarfs: 27
 Pulsars: 13
 Neutron Stars: 10
 Magnetars: 12
 Multiple Stars: 67 (including clusters)
 Exploding Star – Nebula: 1 or 2

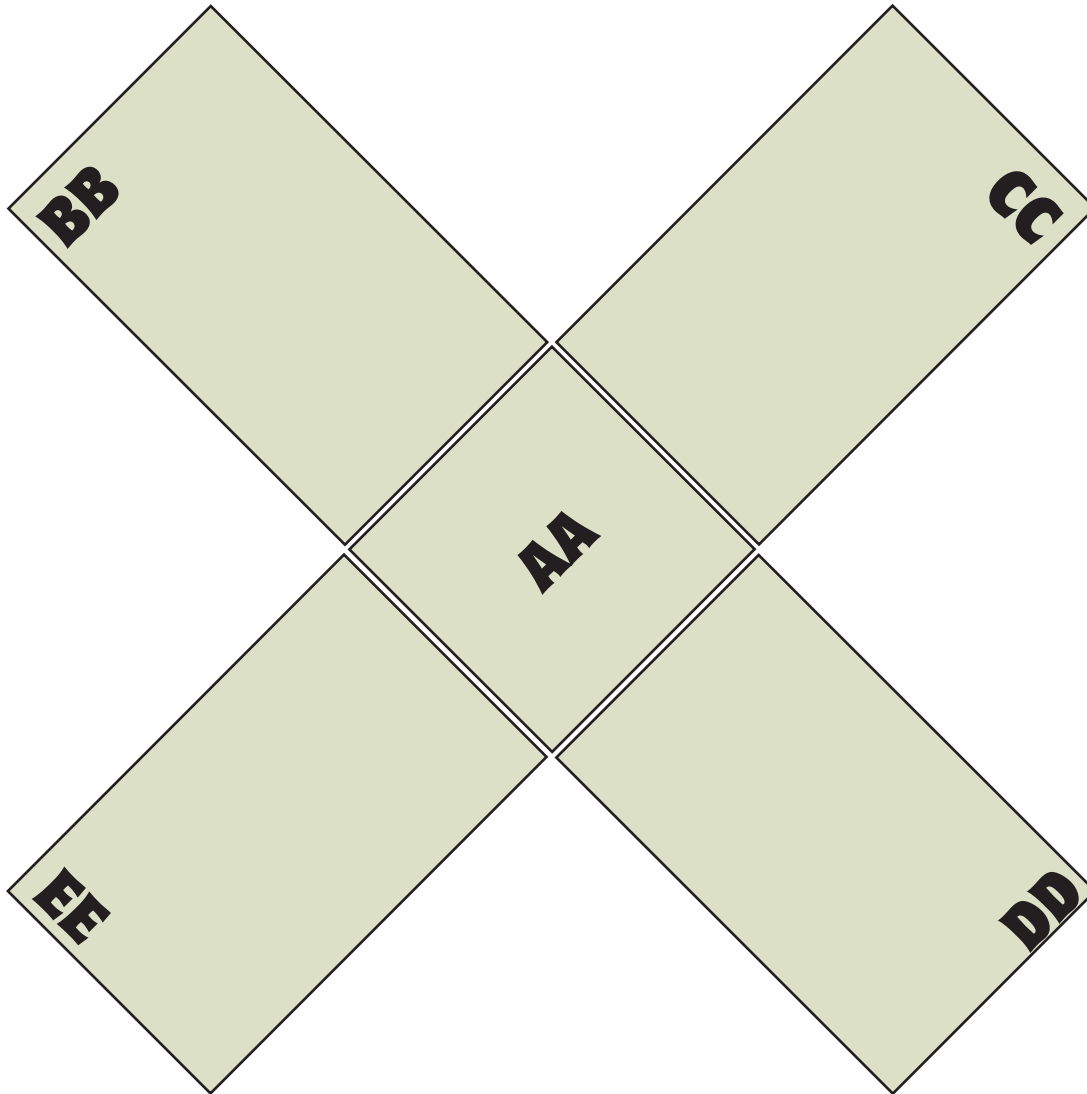
Population numbers are approximate. The total is at least 838.



Star Chart, Home Universe

The game is designed for 2 or 4 players. Players 1, 2, 3 and 4 start at the Pentuple stars located in Maps BB, DD, CC and EE, respectively. Map AA provides exit to Map A, which is the first of 28 map sections that make up “The Race for NGC-700,000.”

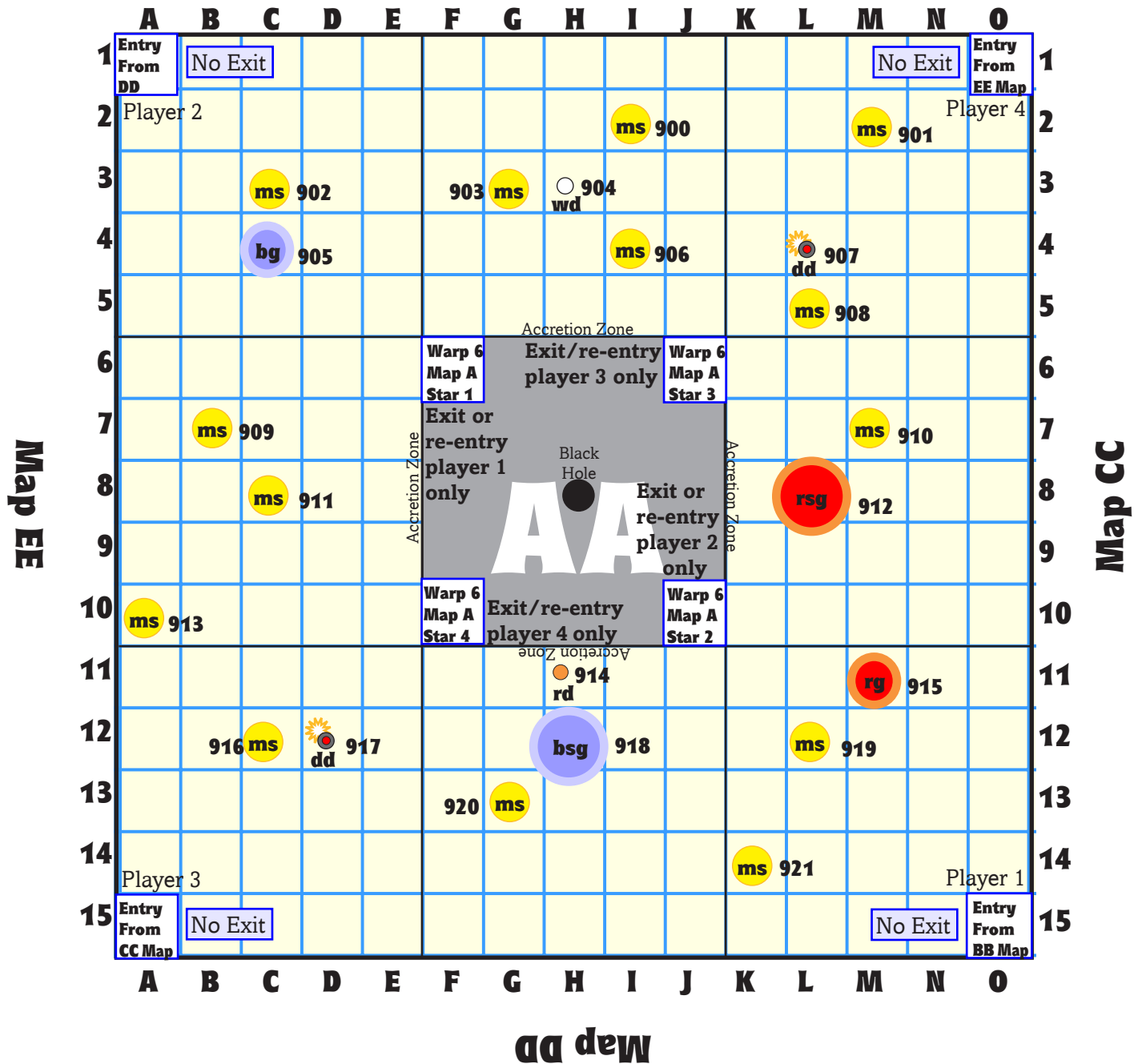
Arrange the 5 map sections as depicted below. Pin them to a panel of 24” square soft Masonite® or bulletin board material:



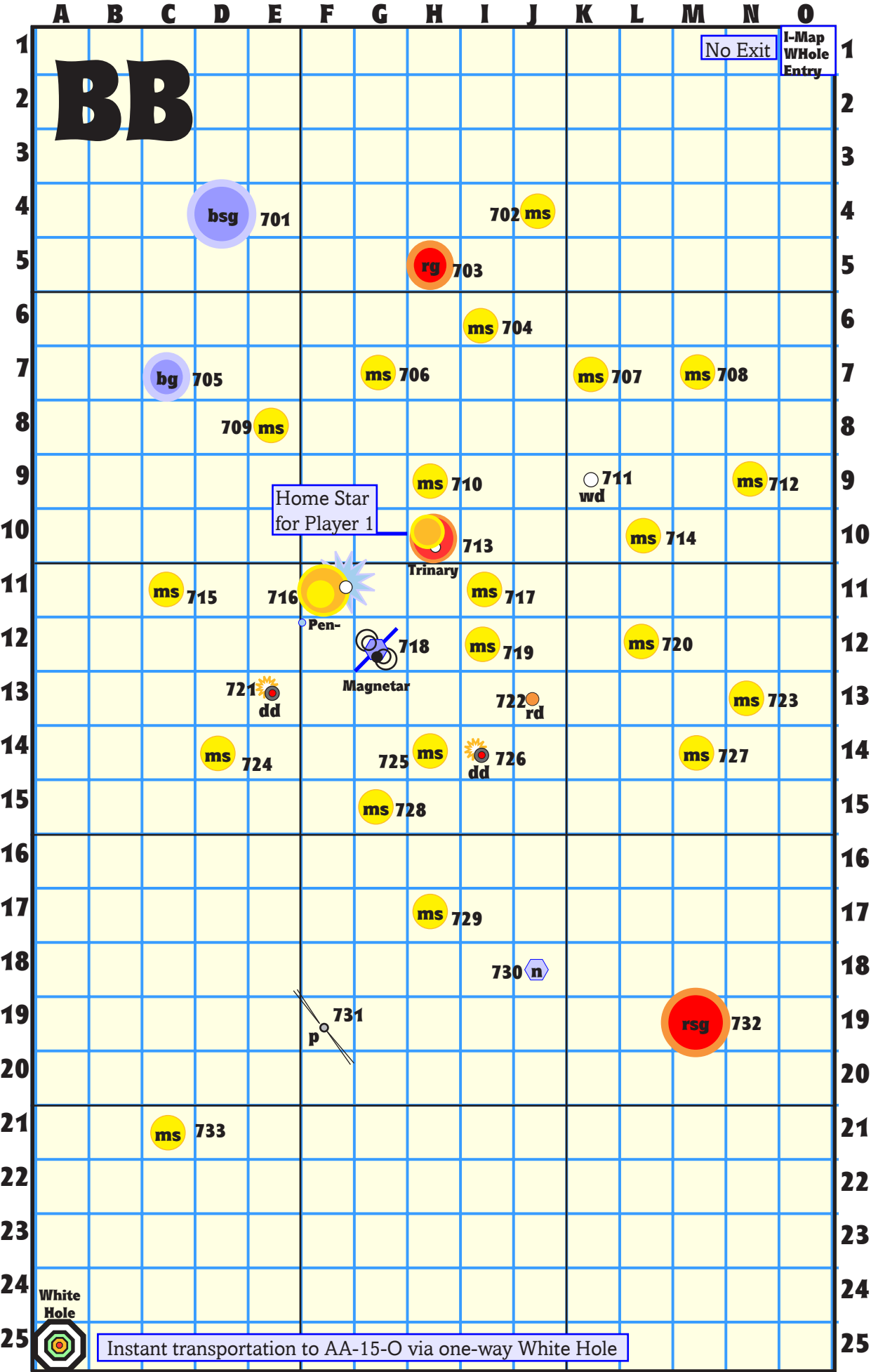
Note: Individual stars are identified by number.

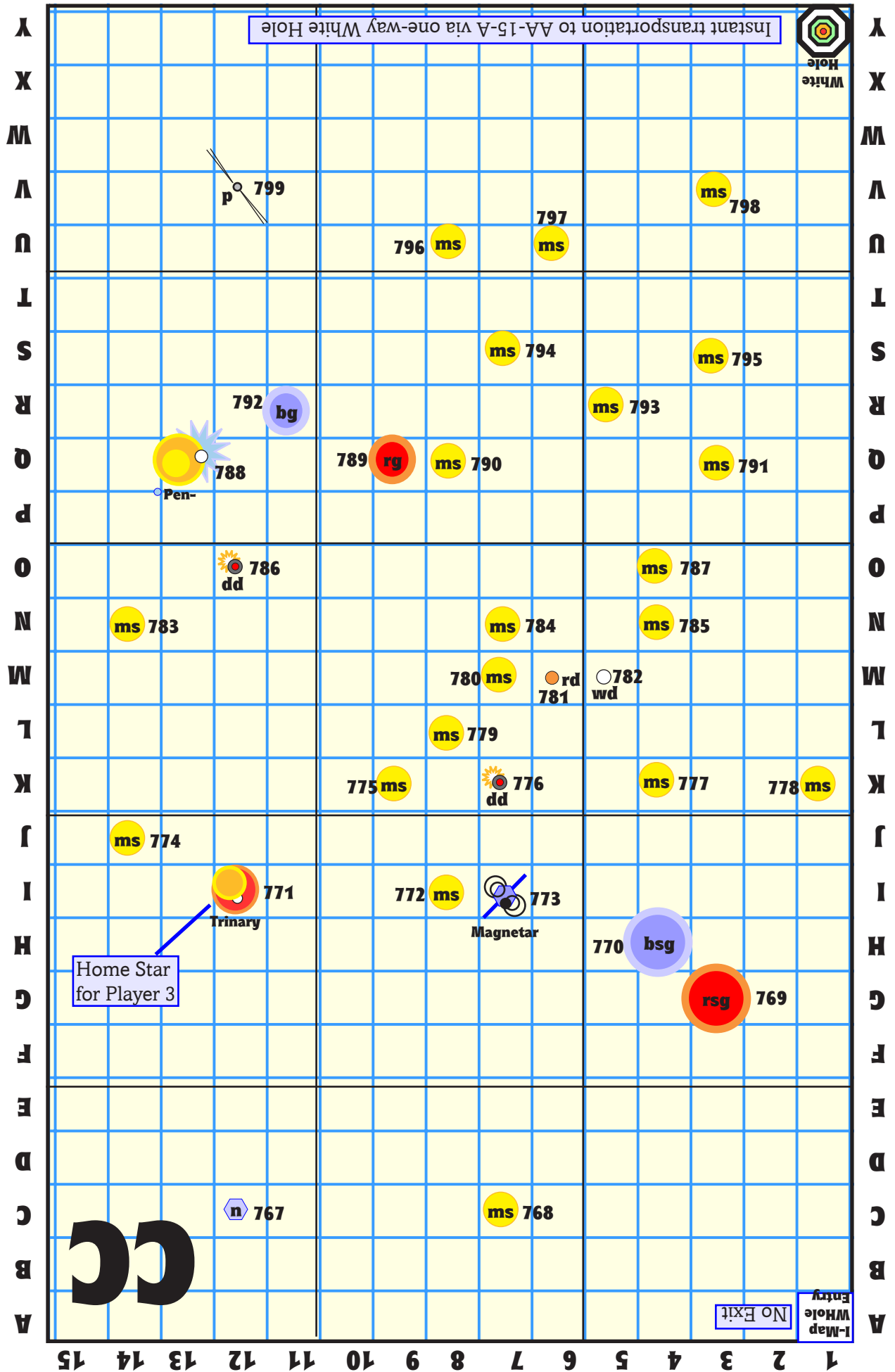
Note: Another map of 28 sections appears as Chapter 18.

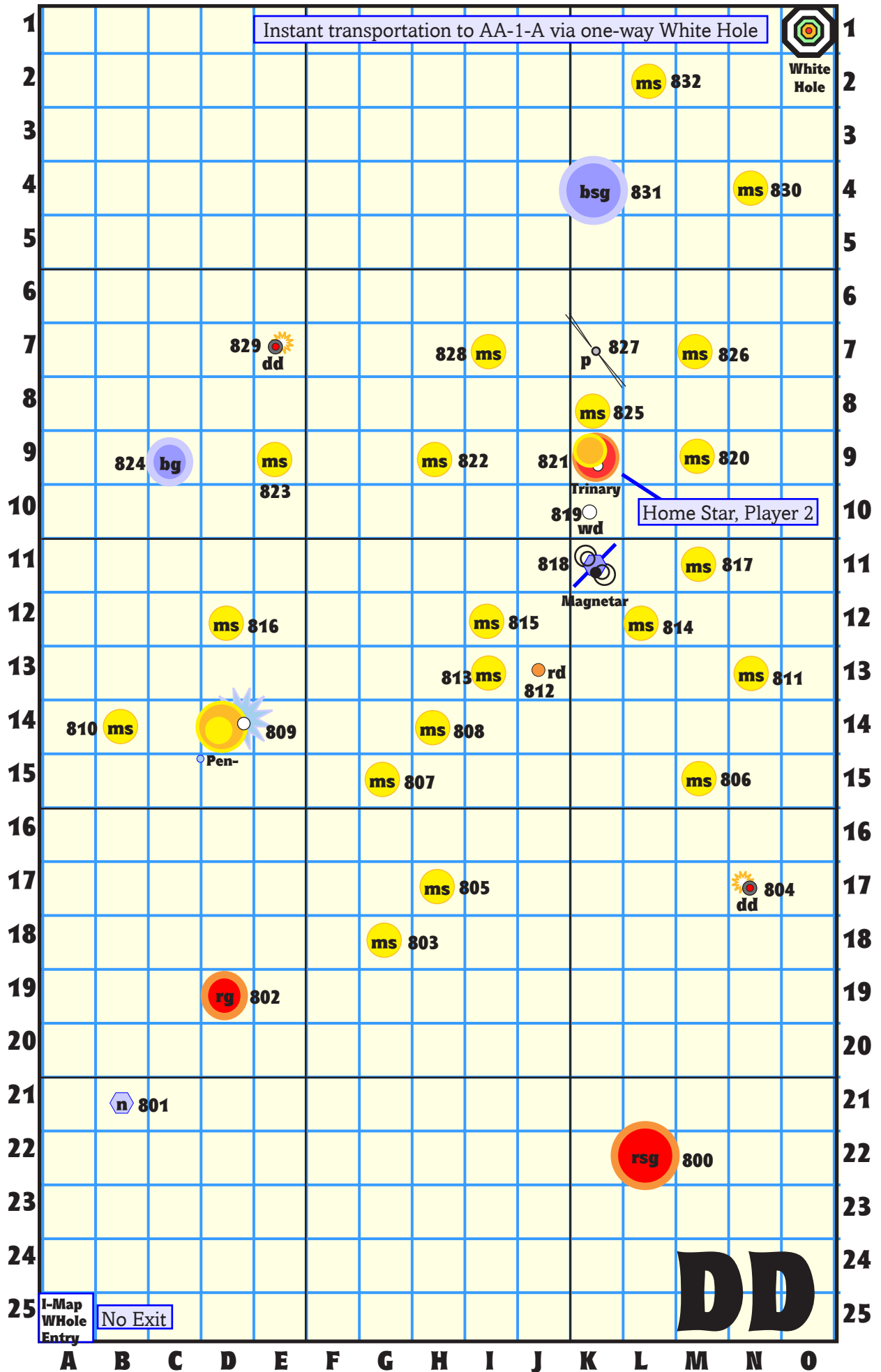
Map BB

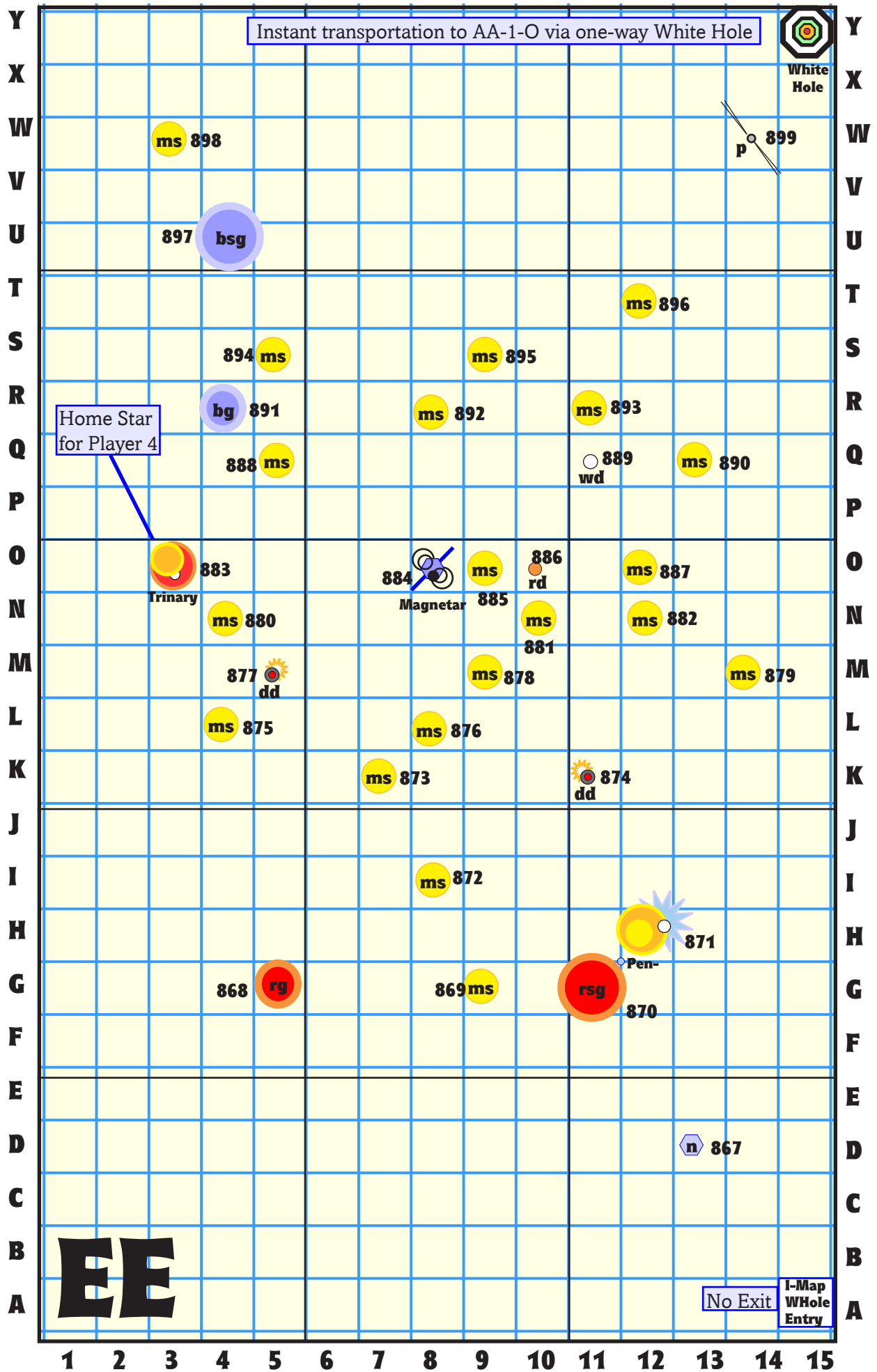


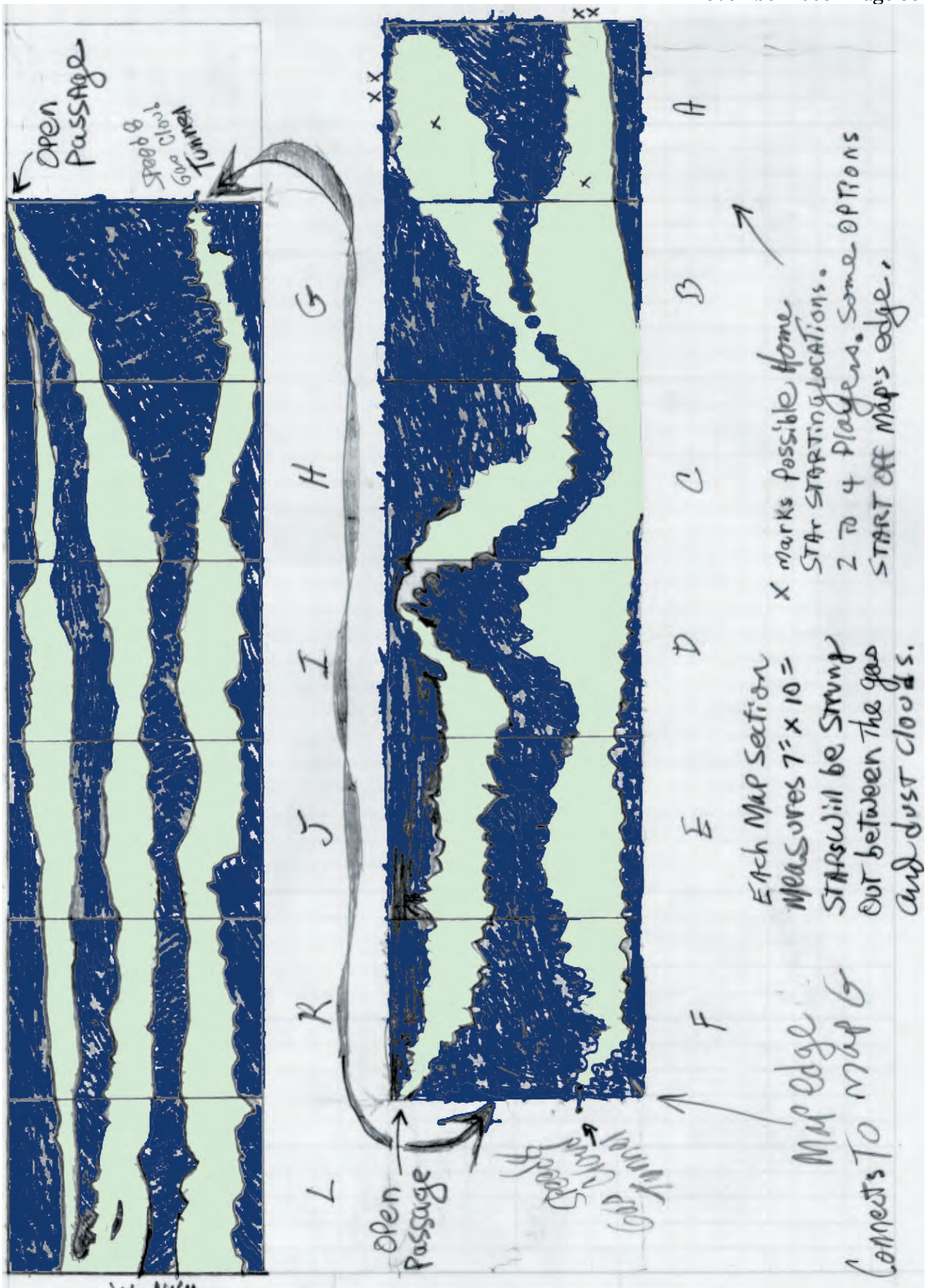
Note: Participants in a 2-player game can agree to limit the contest to Maps AA through EE and allow easy movement between them. Home stars may not be attacked in such a game.

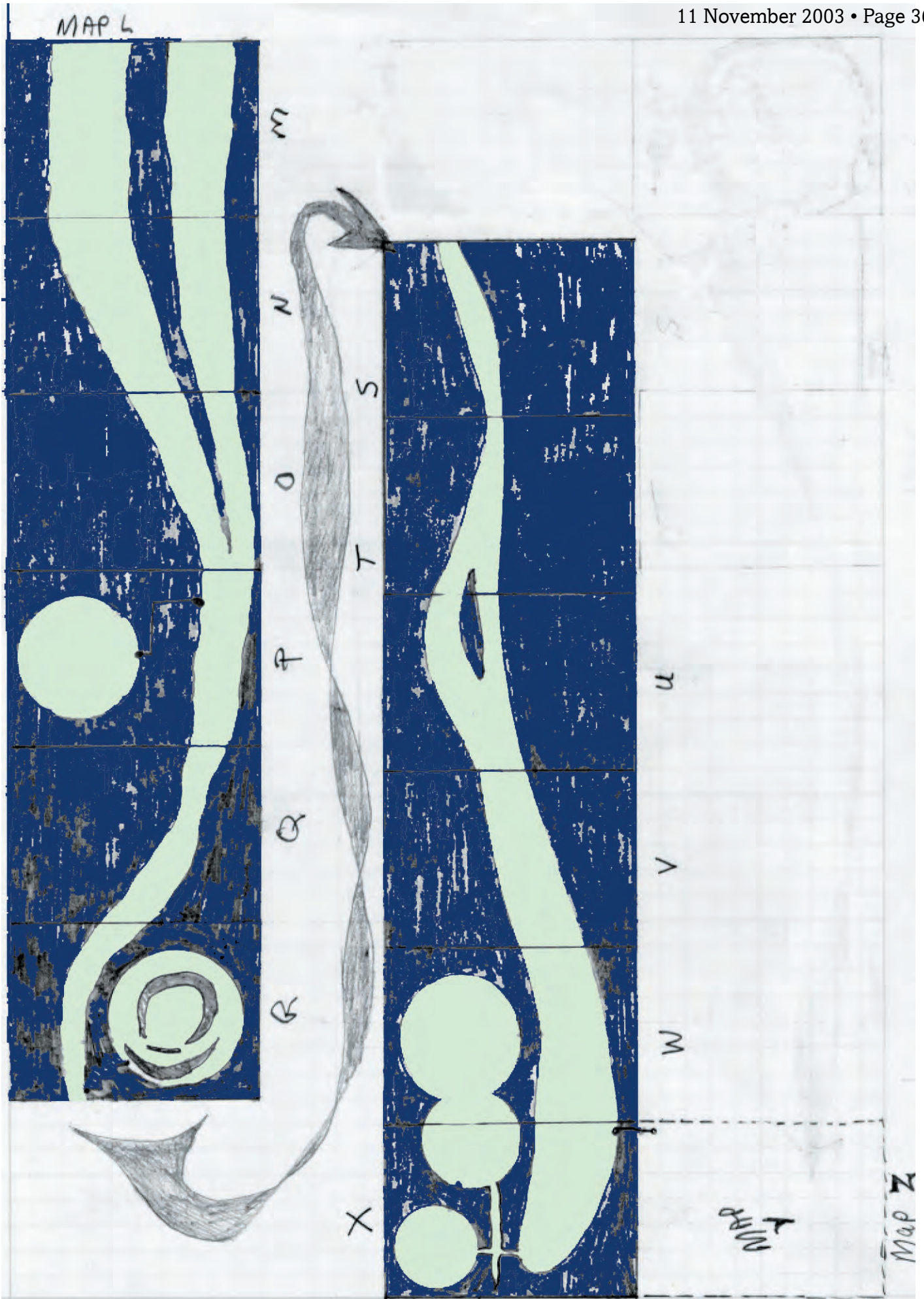


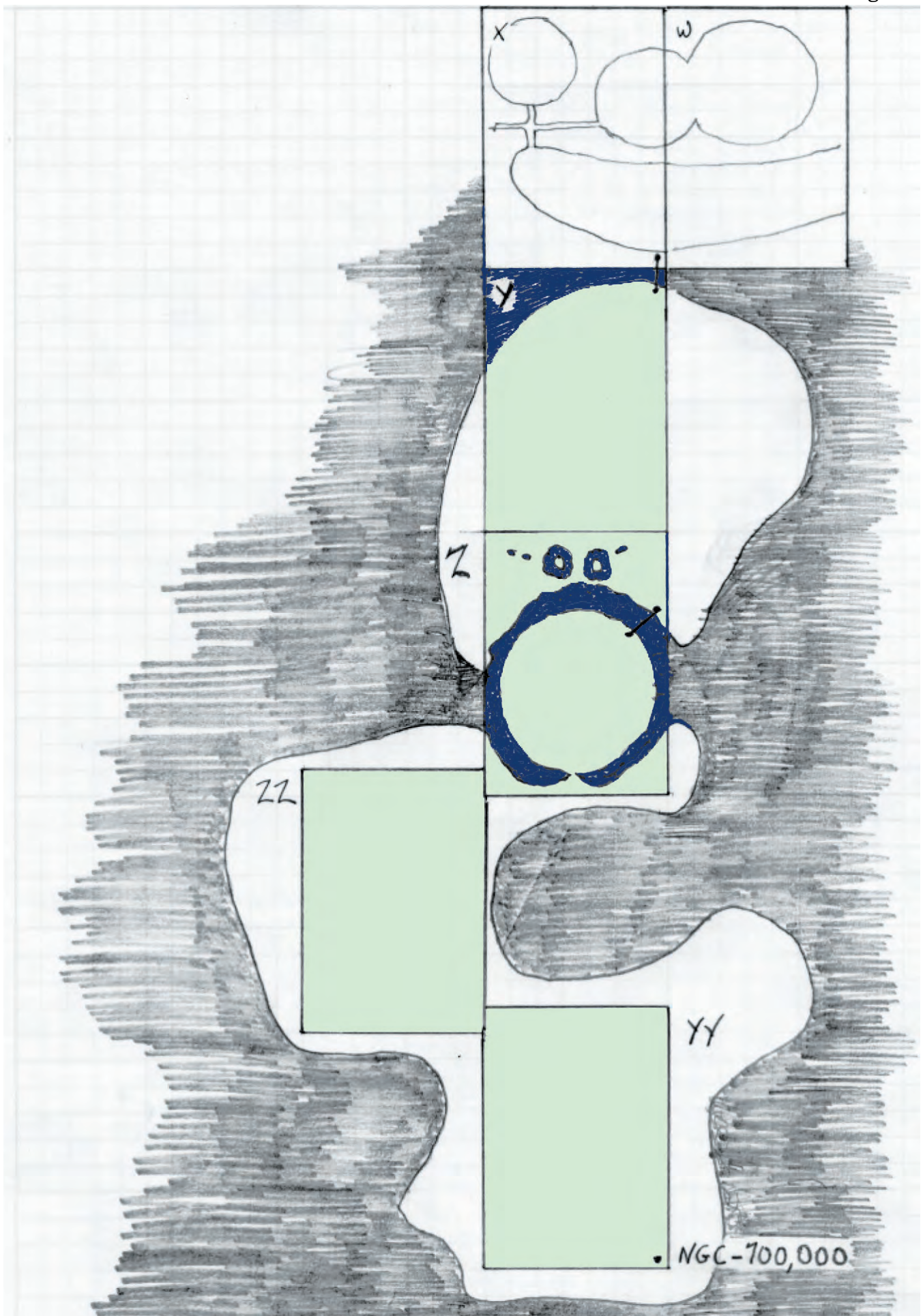


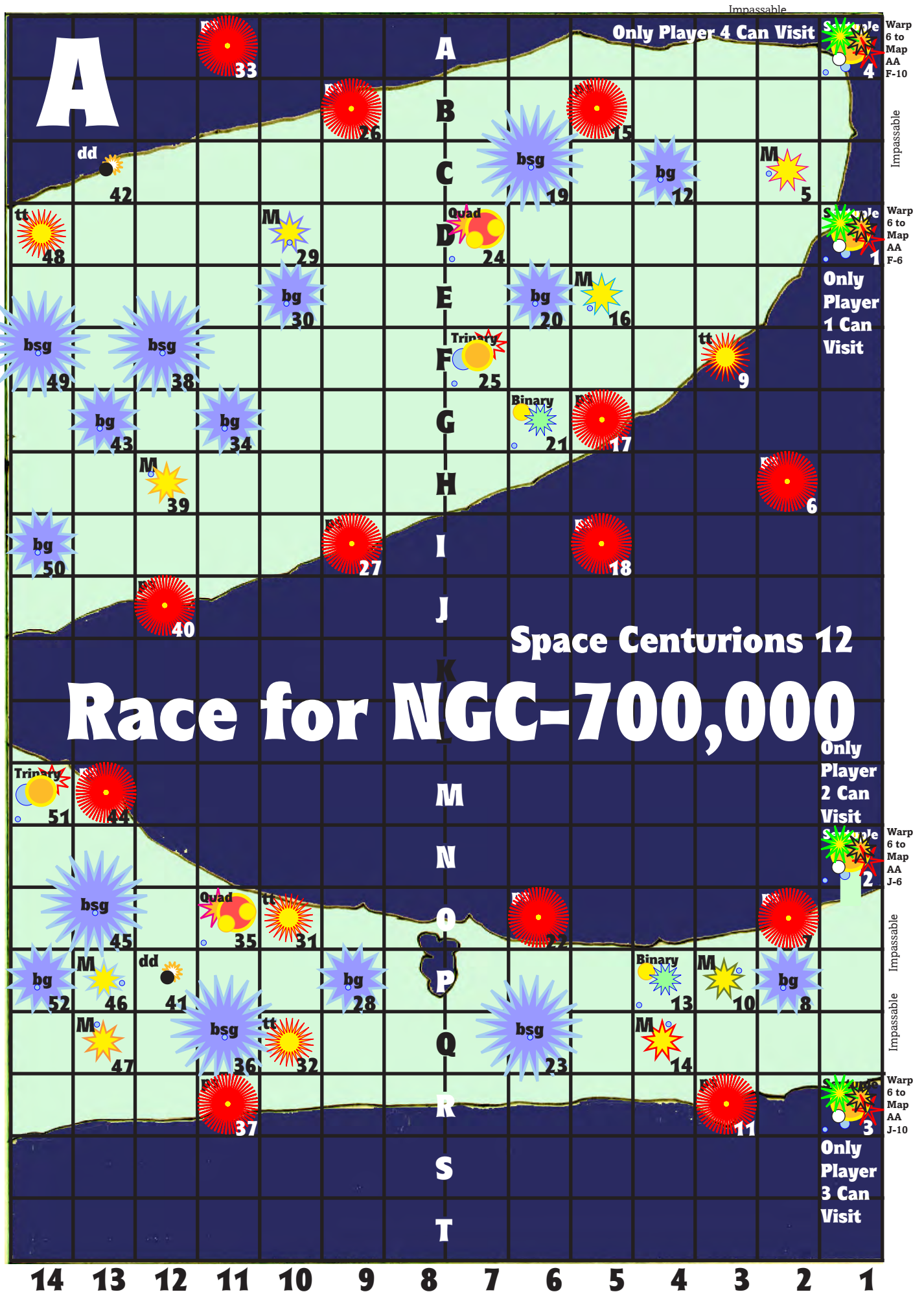


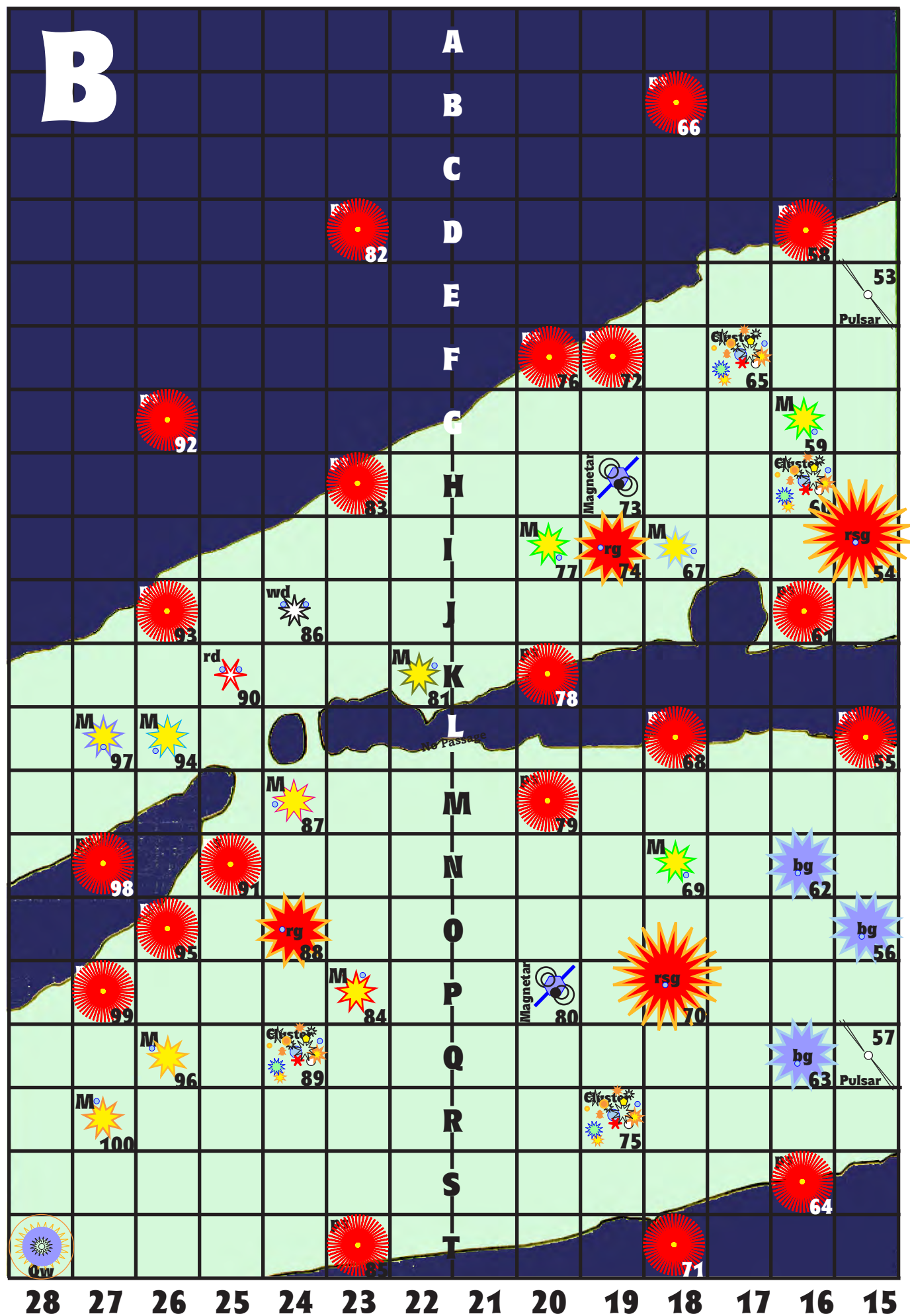


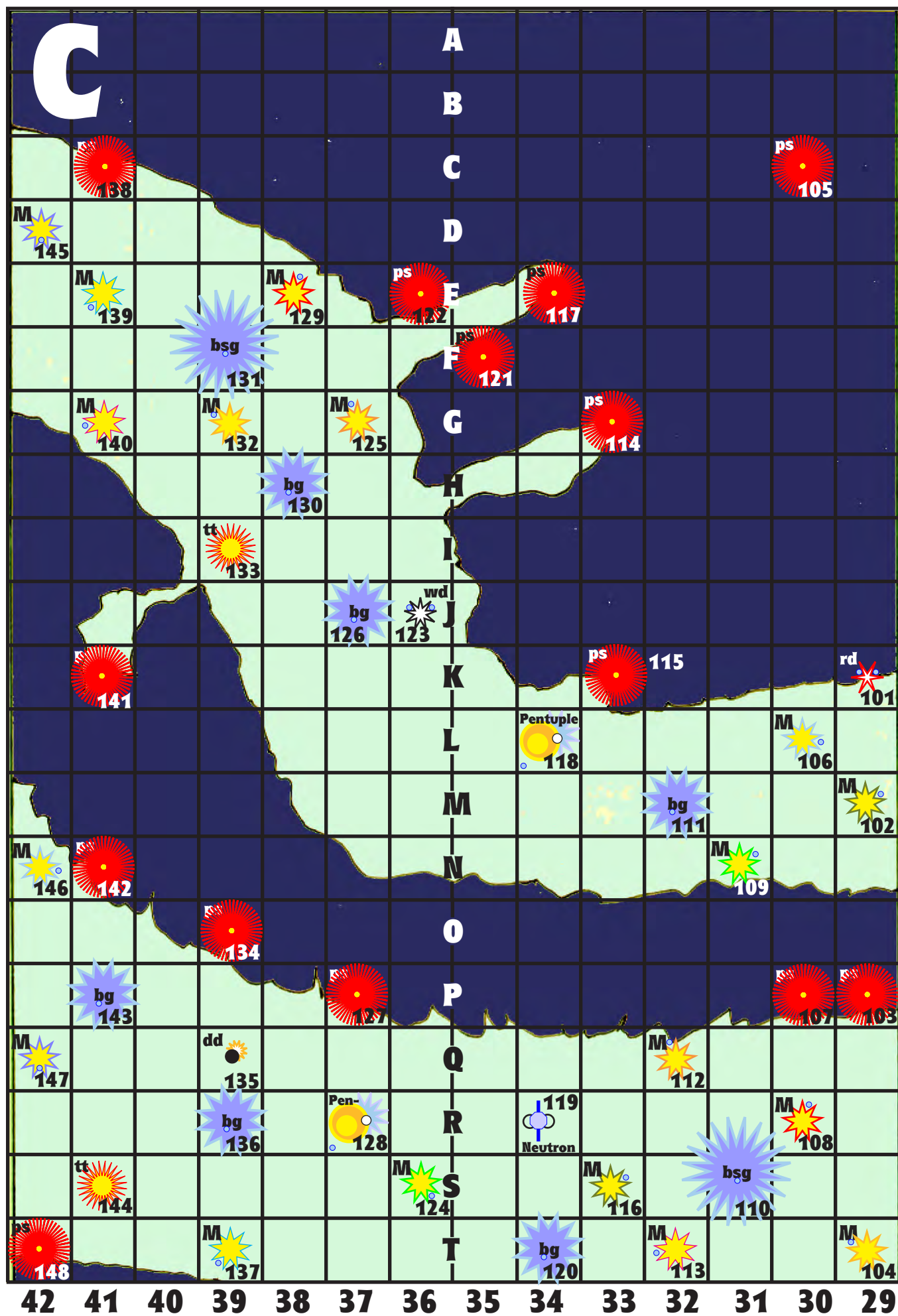


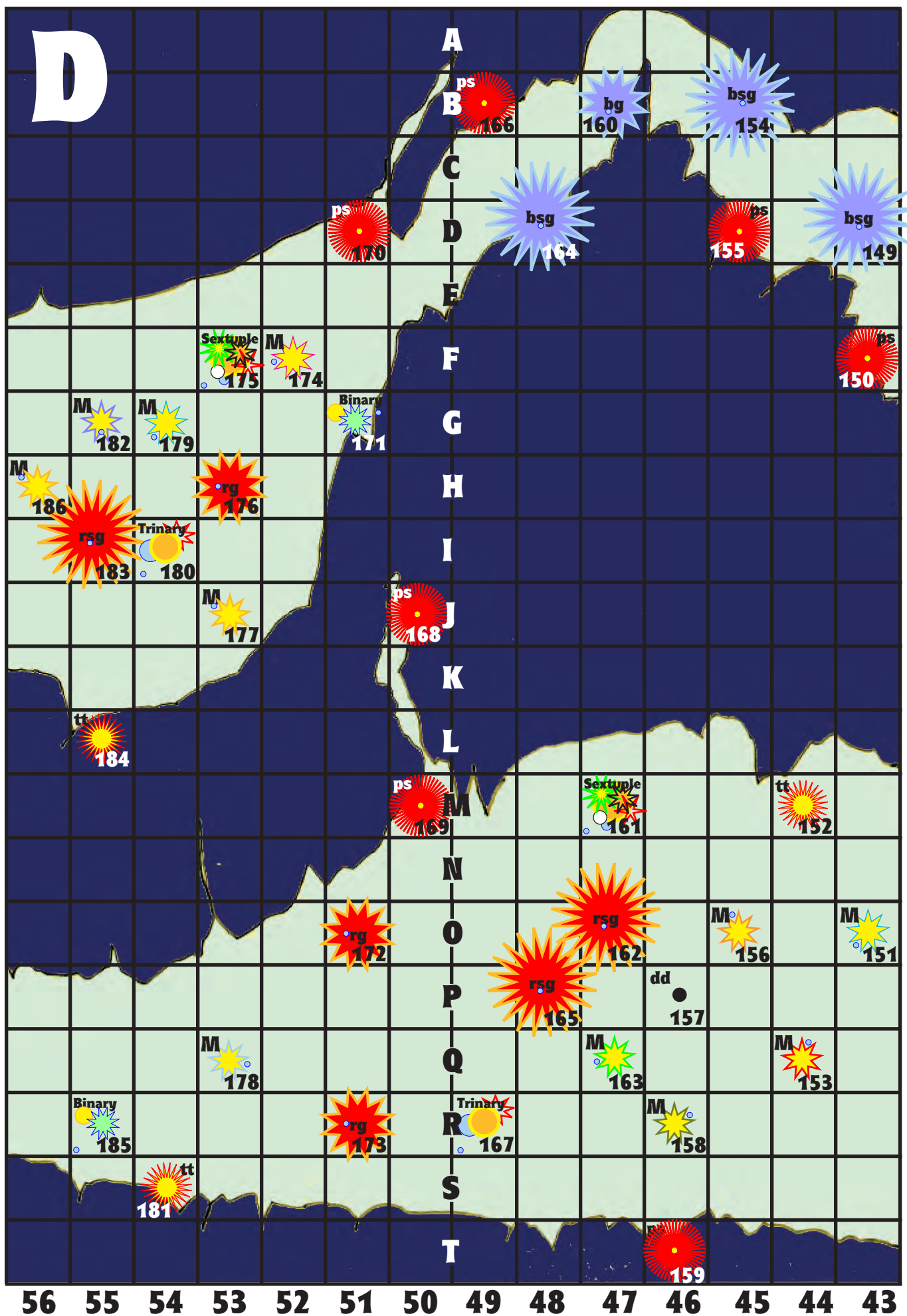


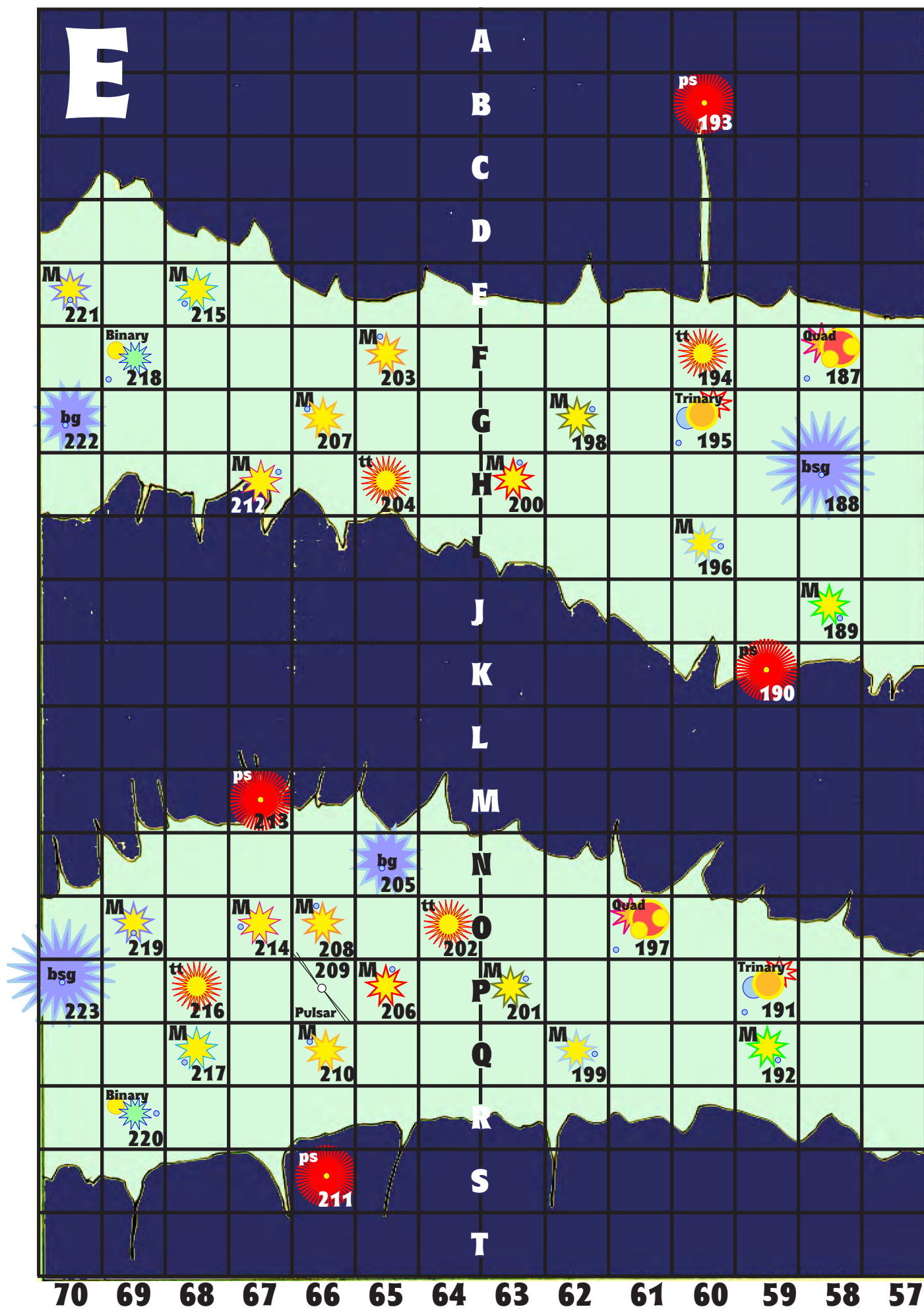




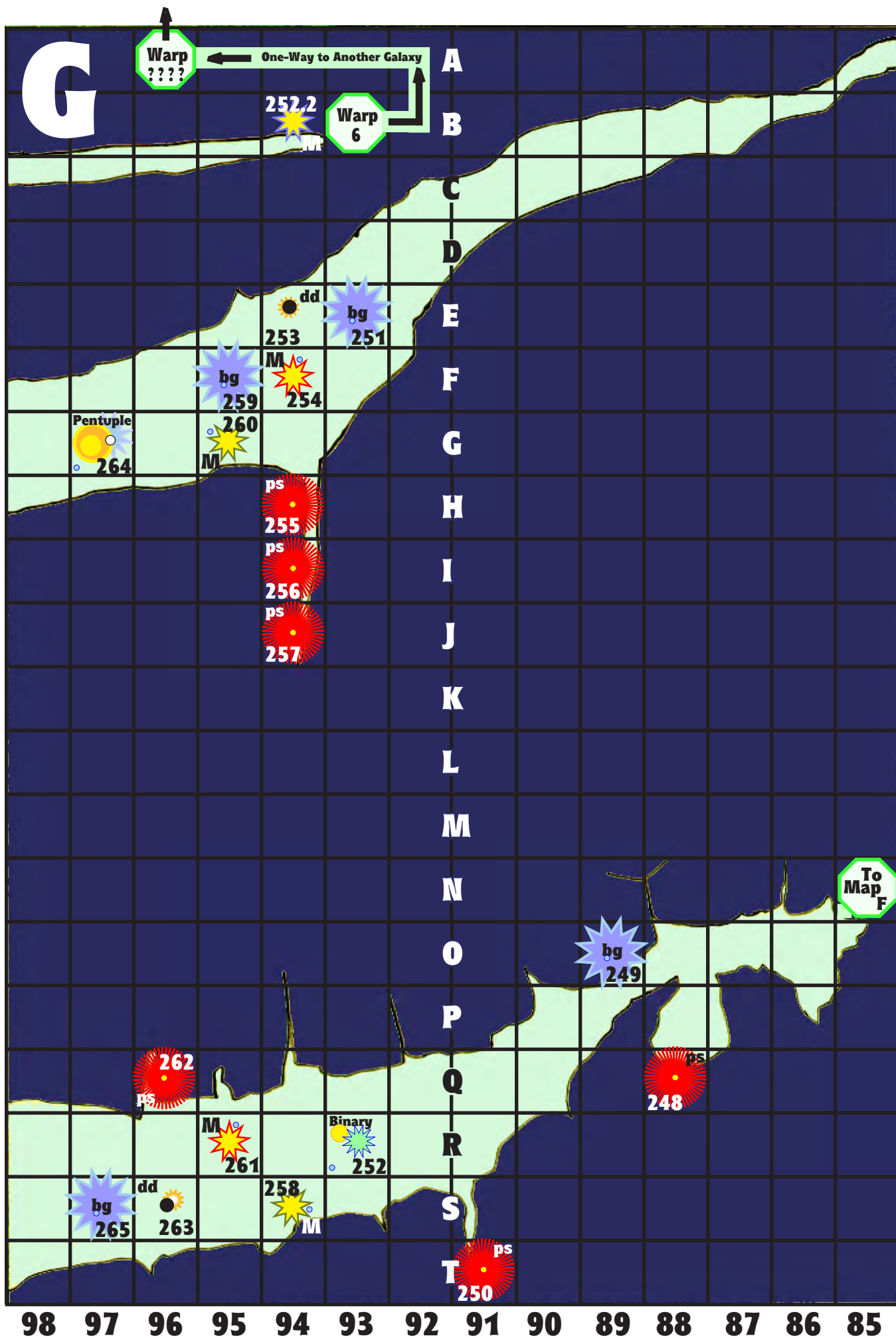


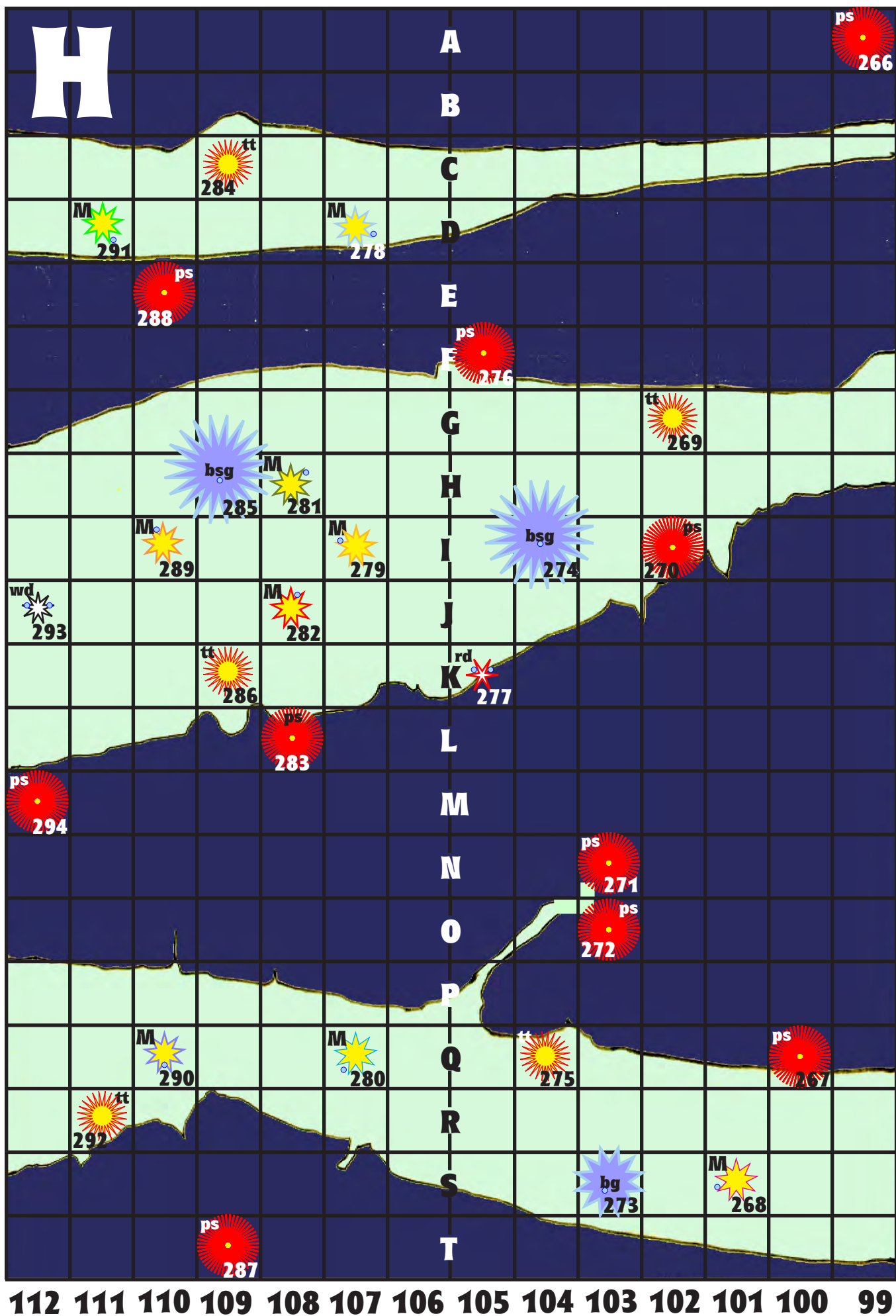


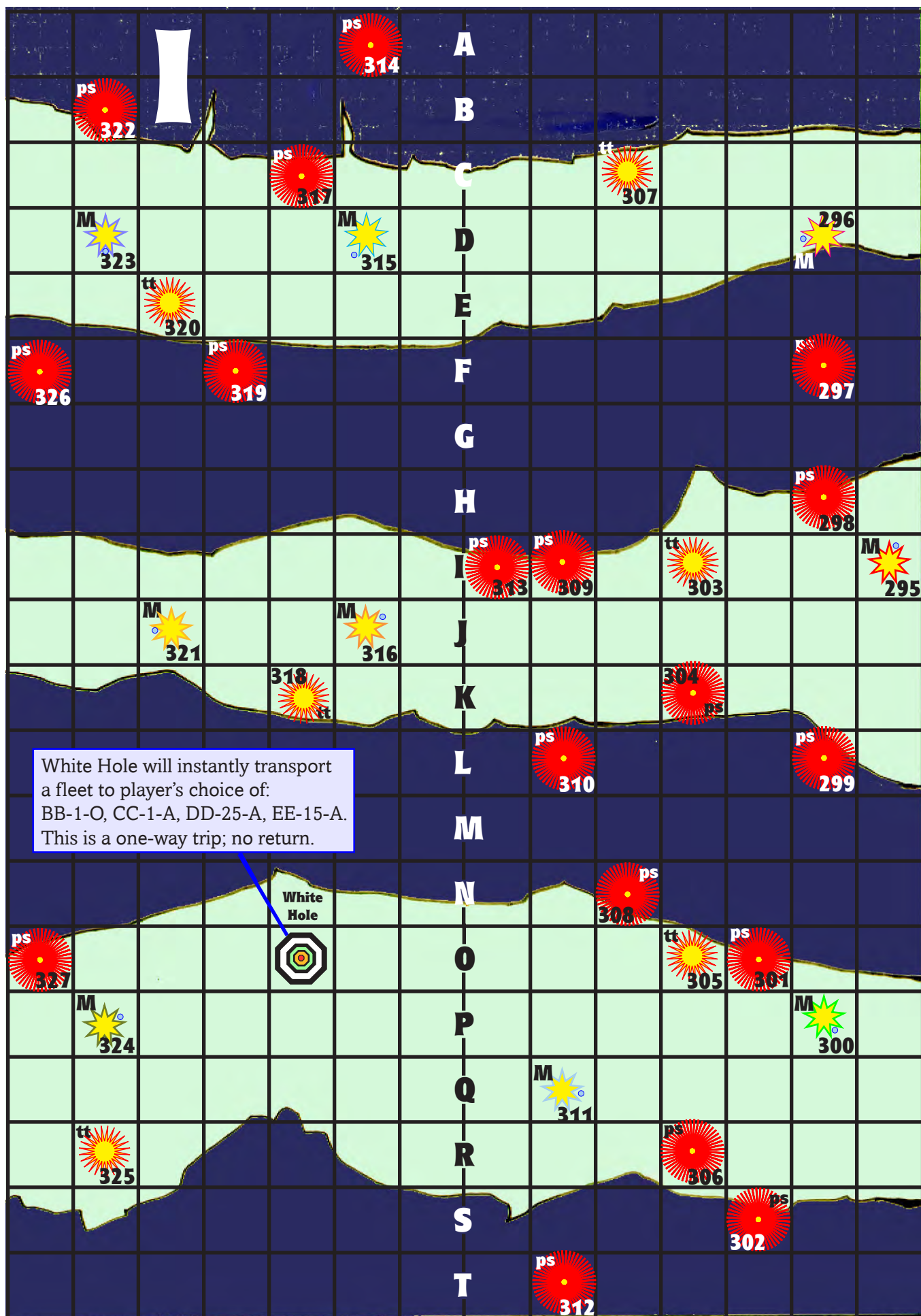




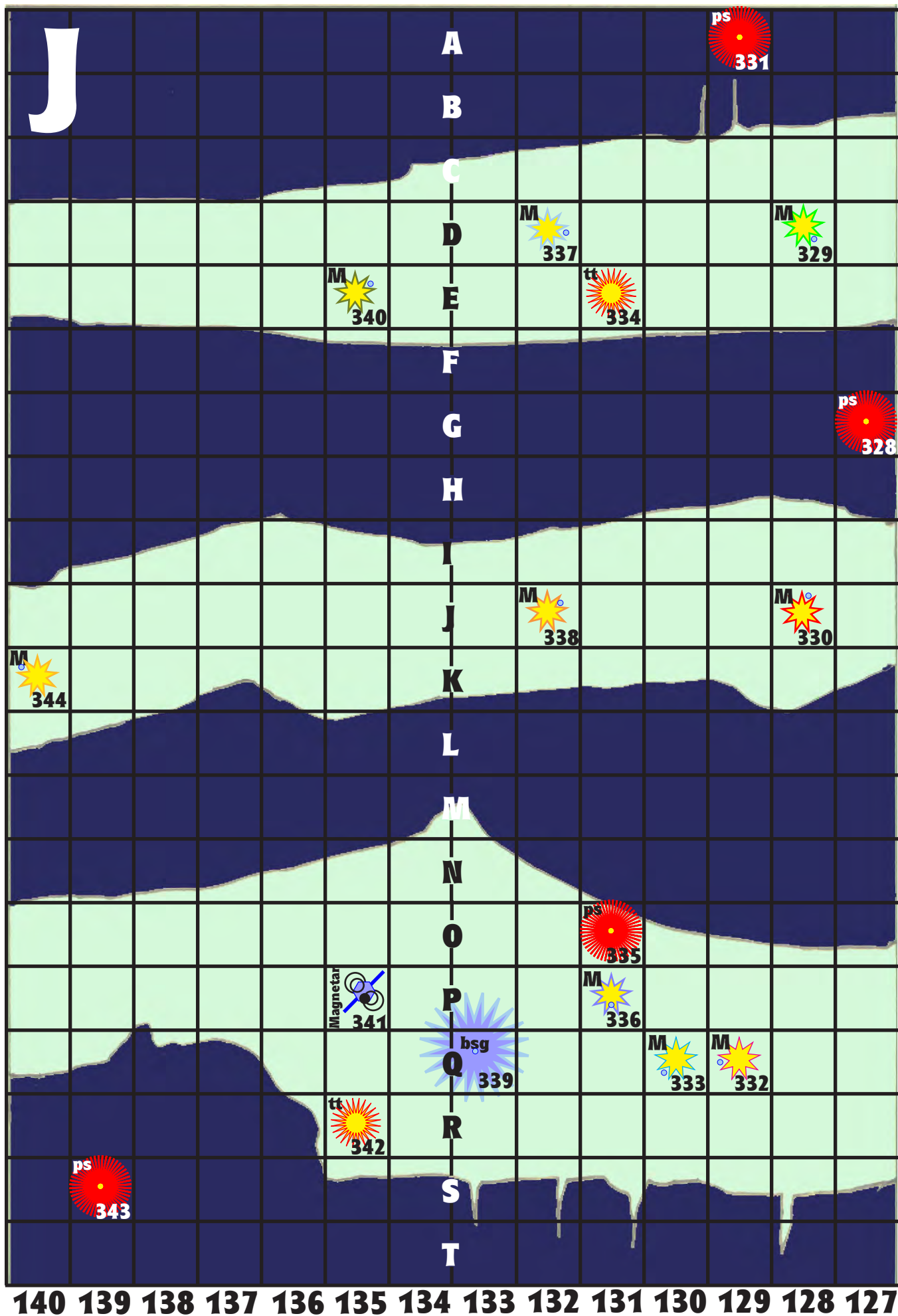


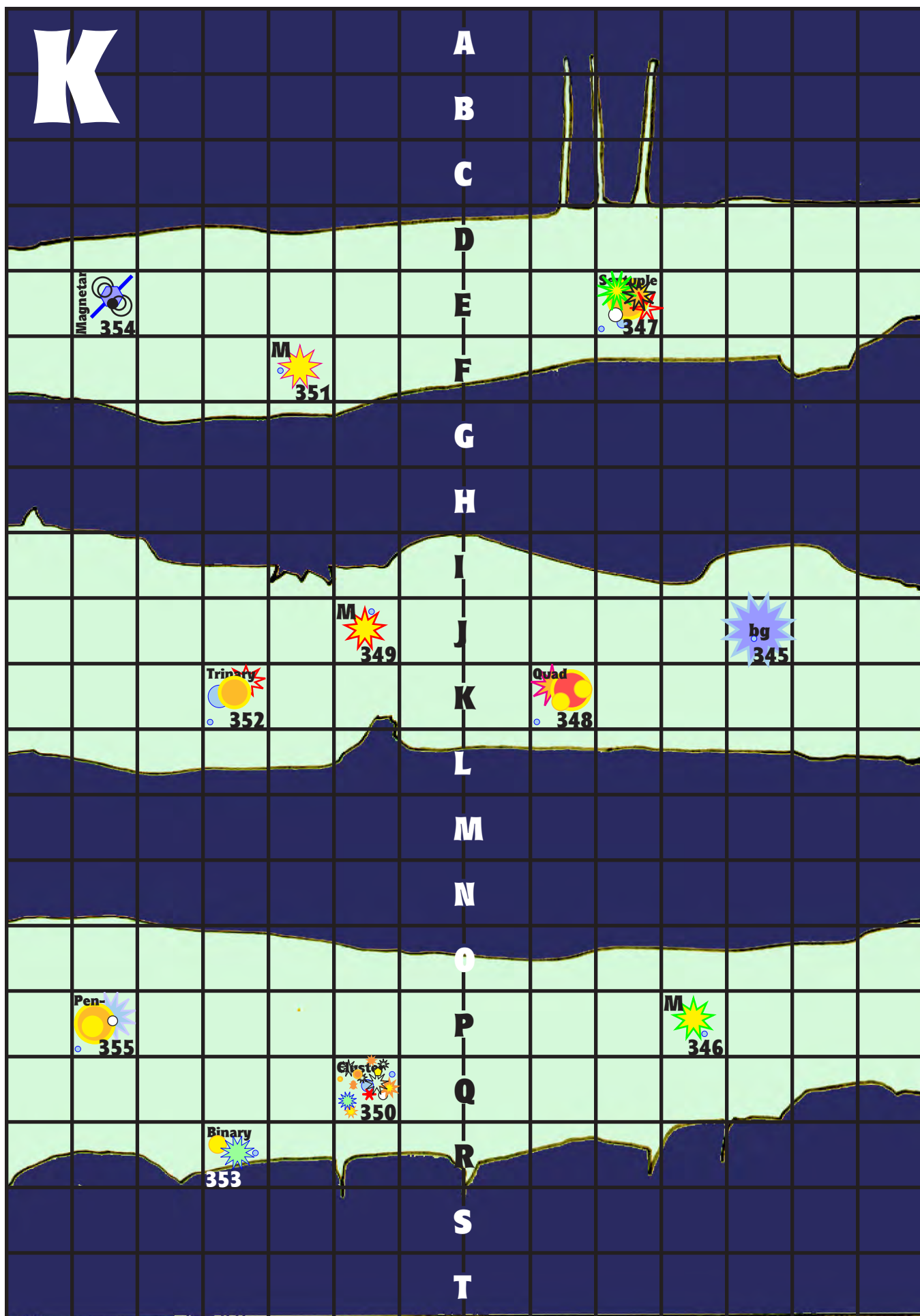




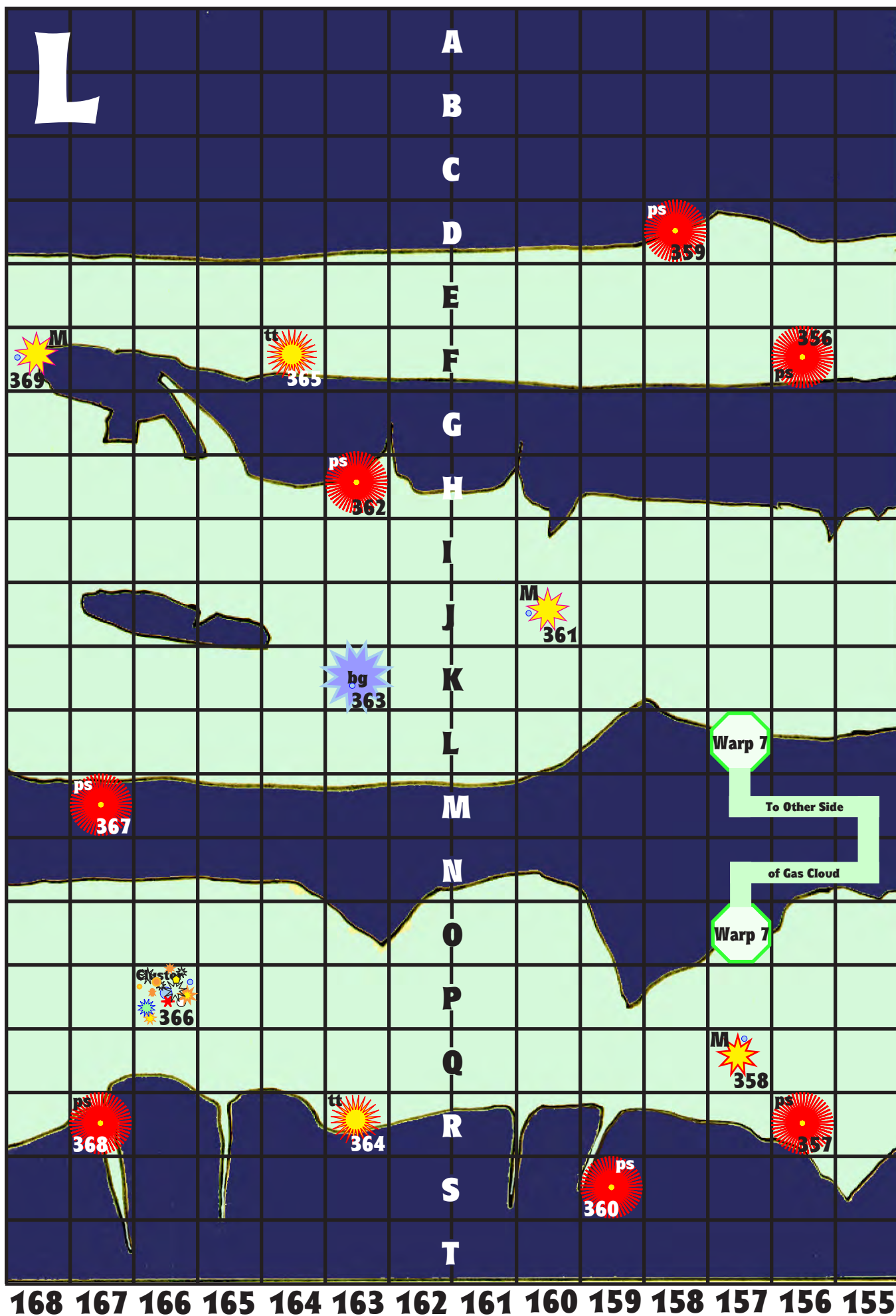


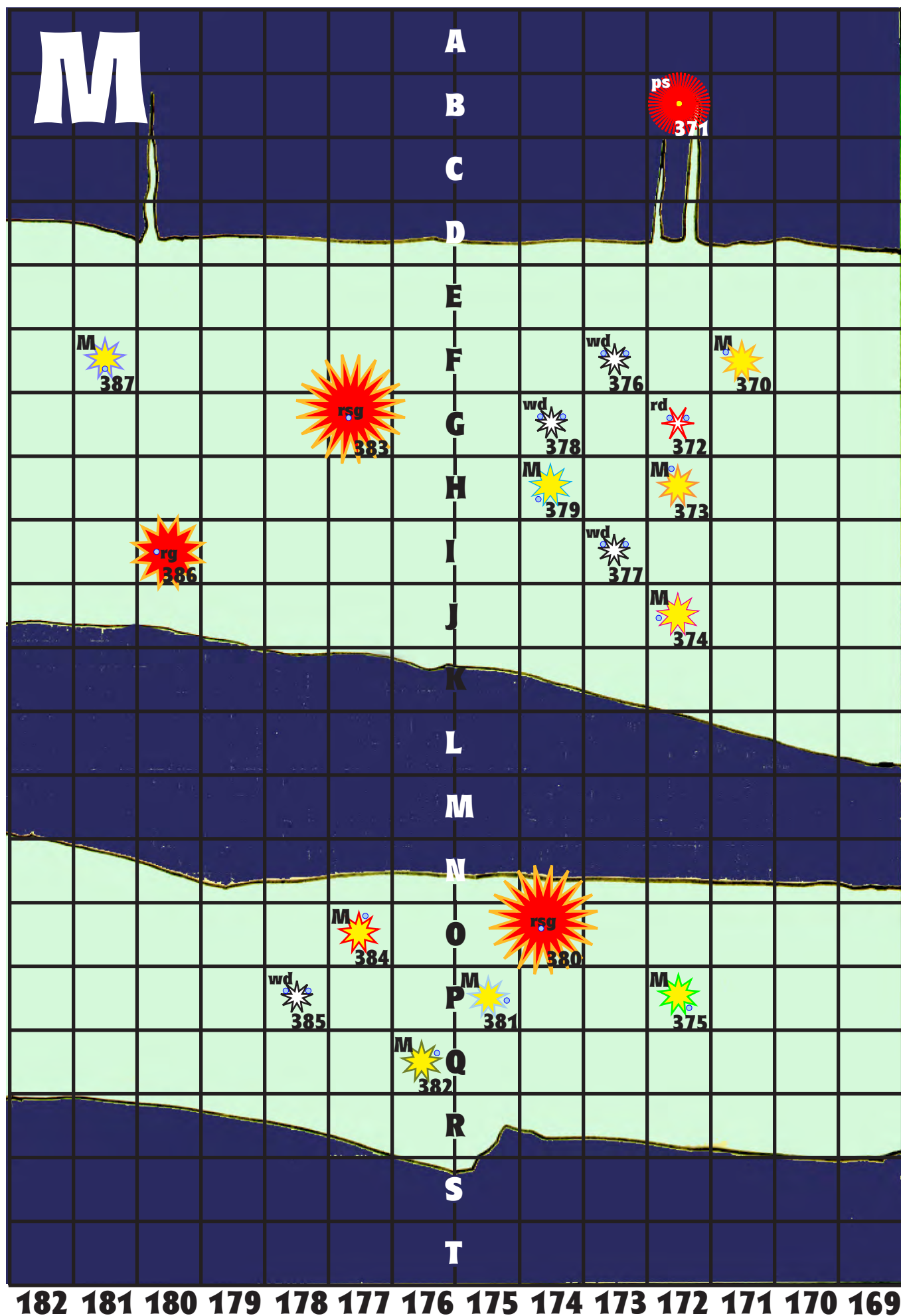
126 125 124 123 122 121 120 119 118 117 116 115 114 113

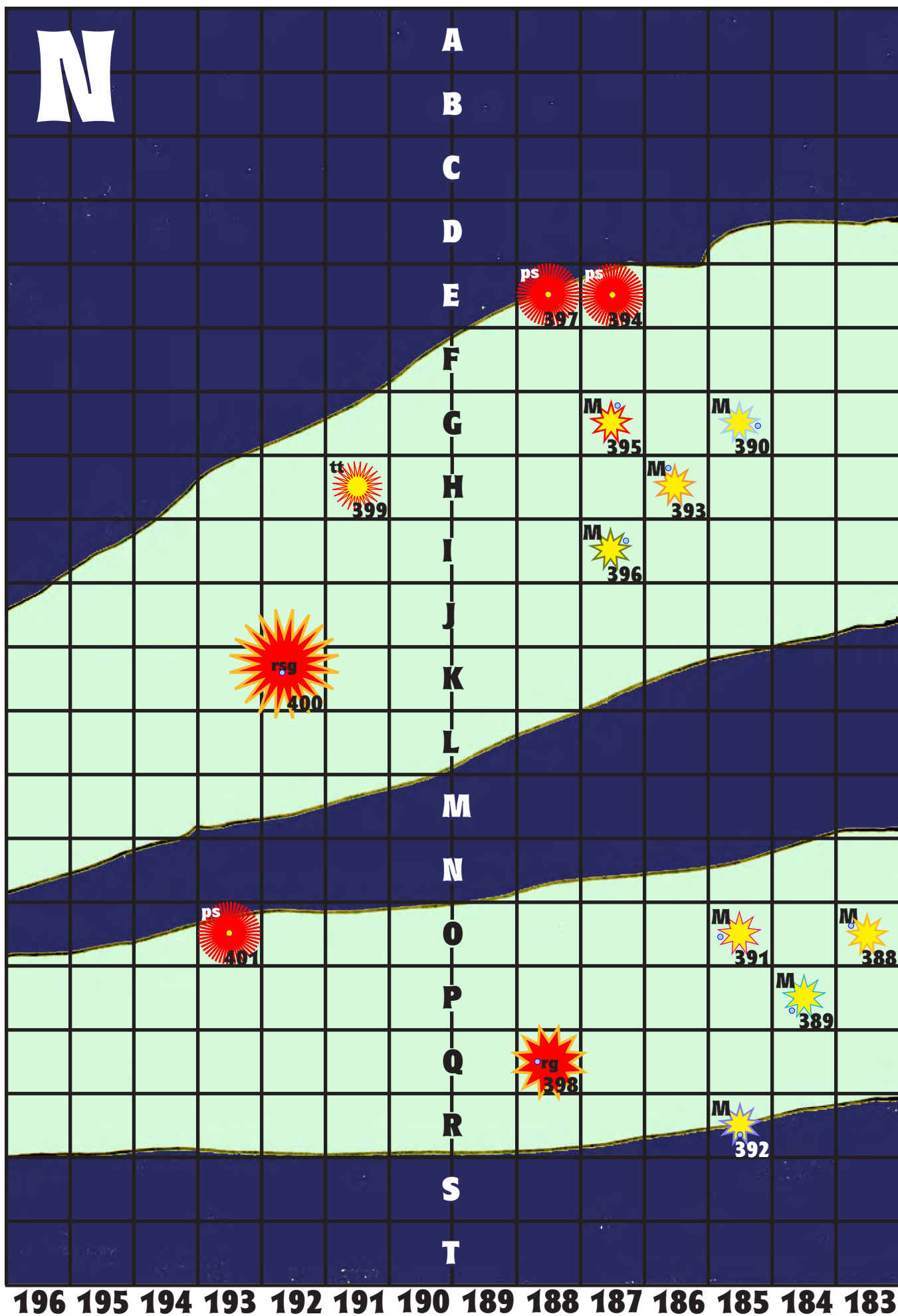


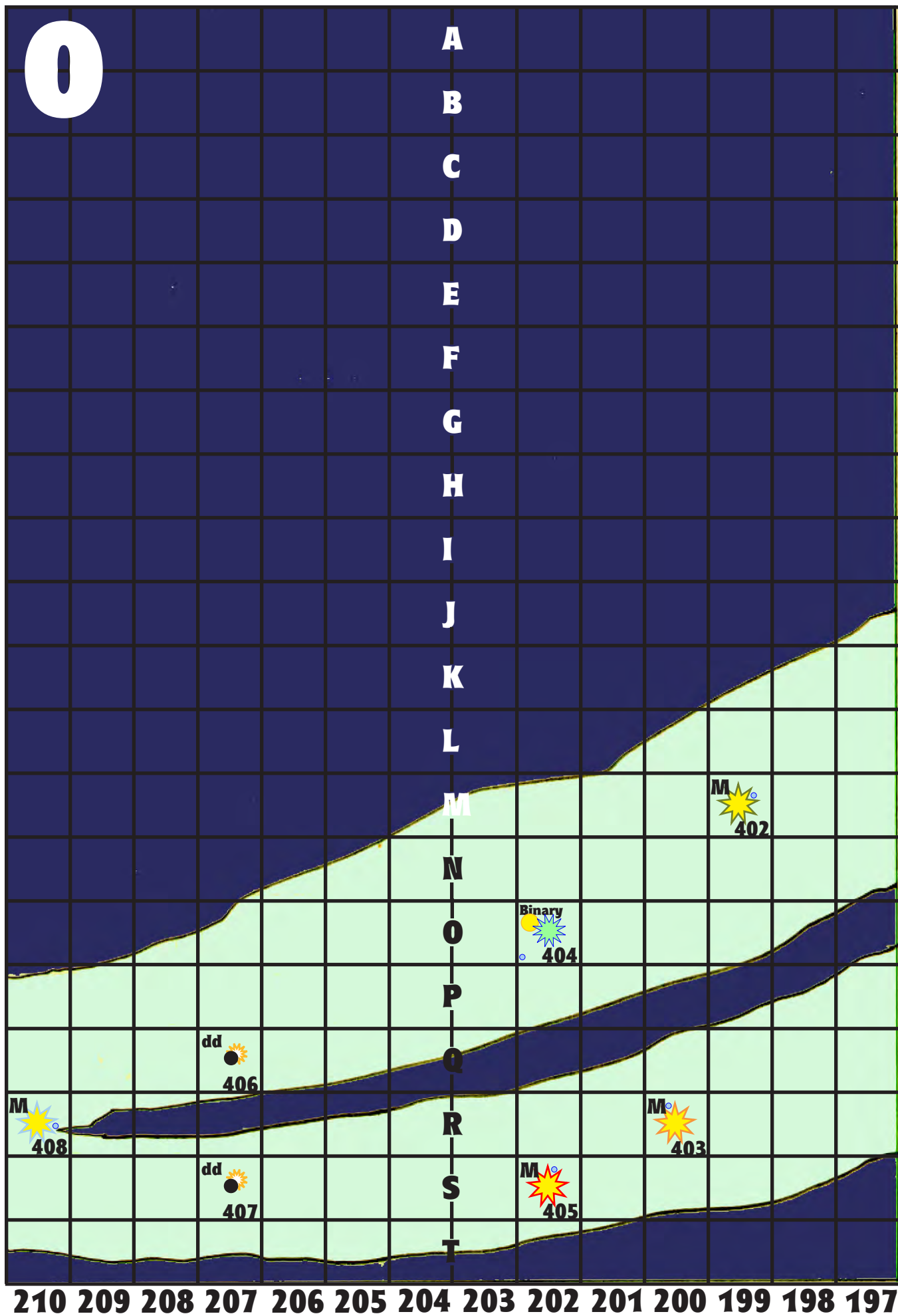


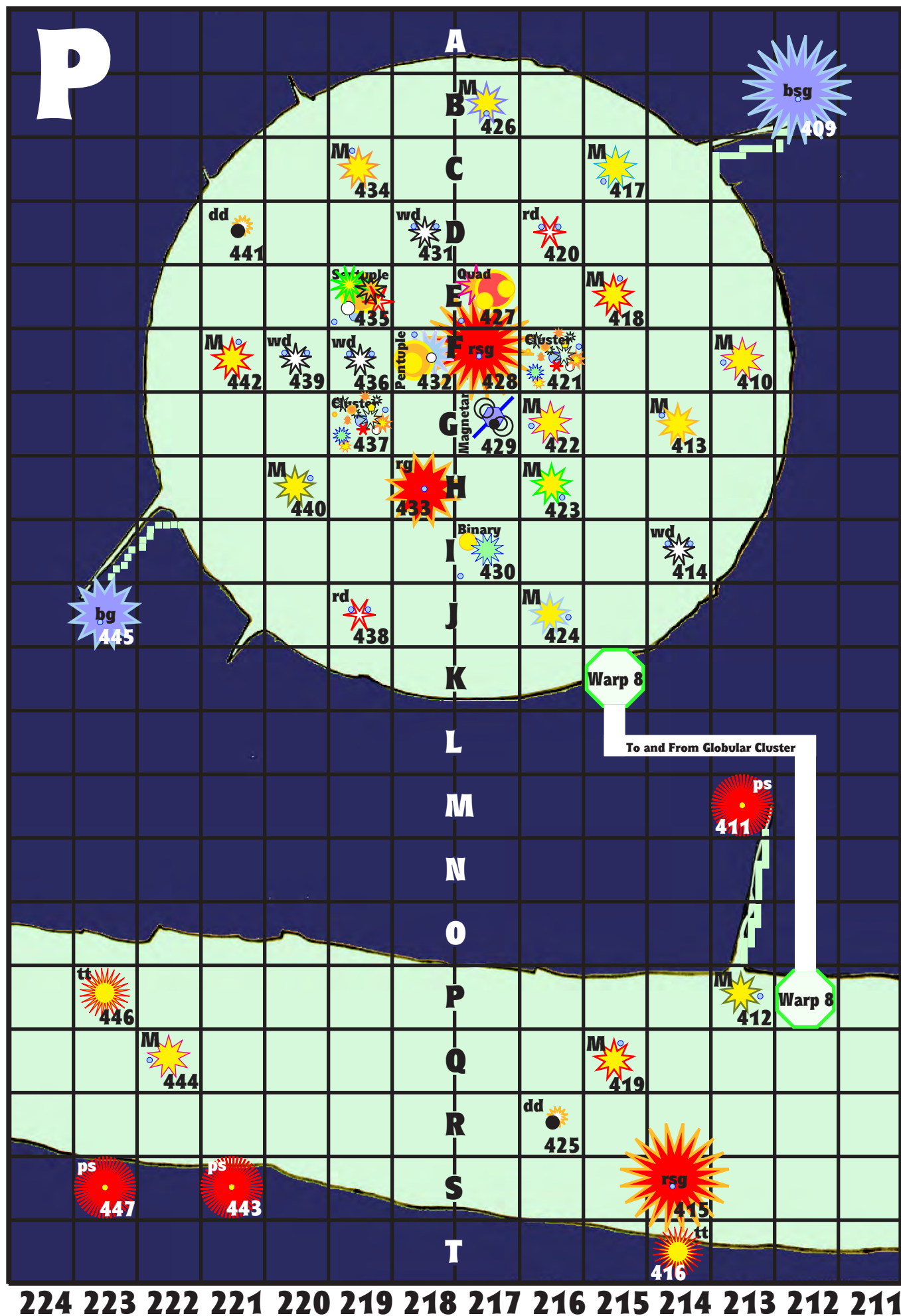
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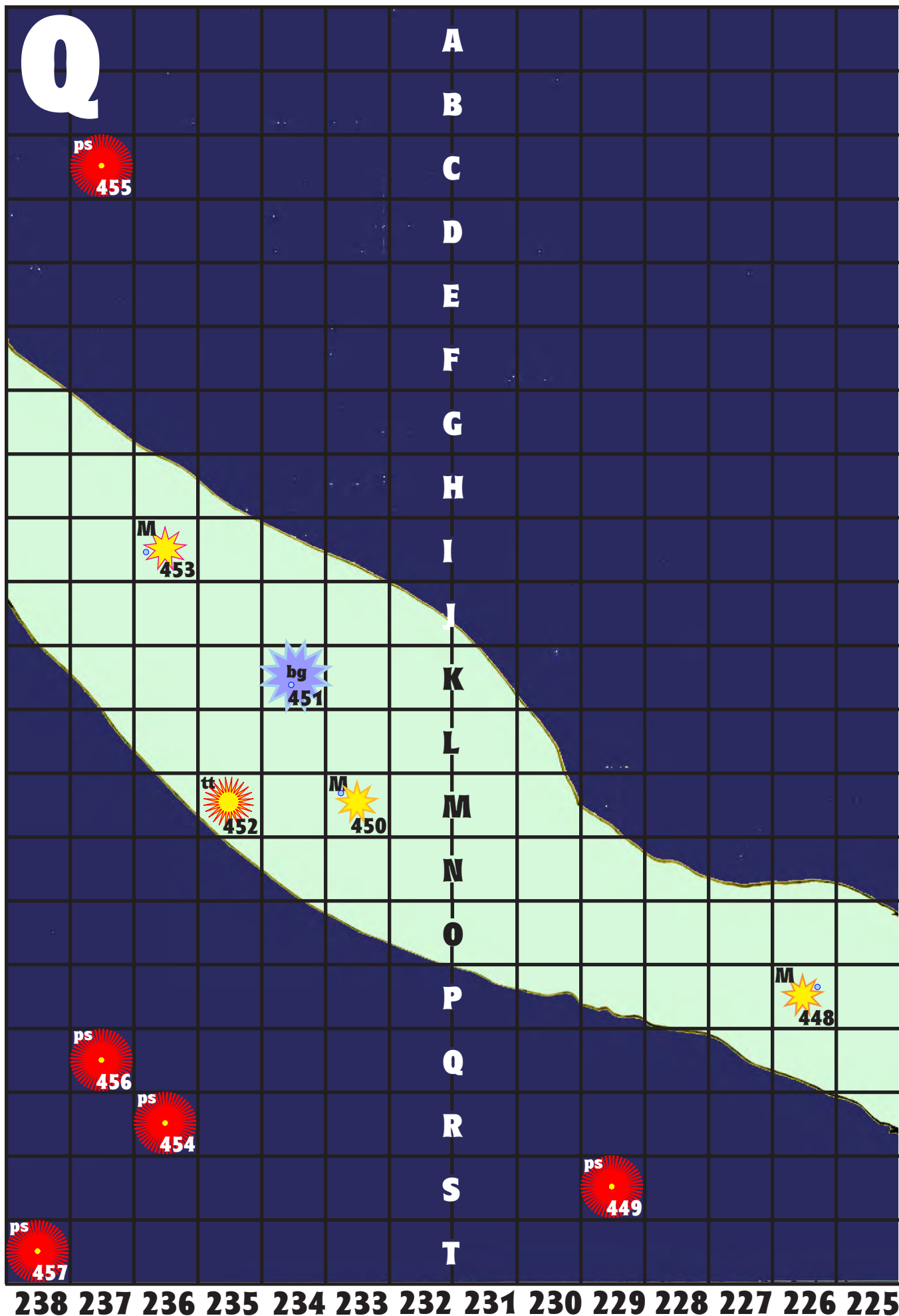


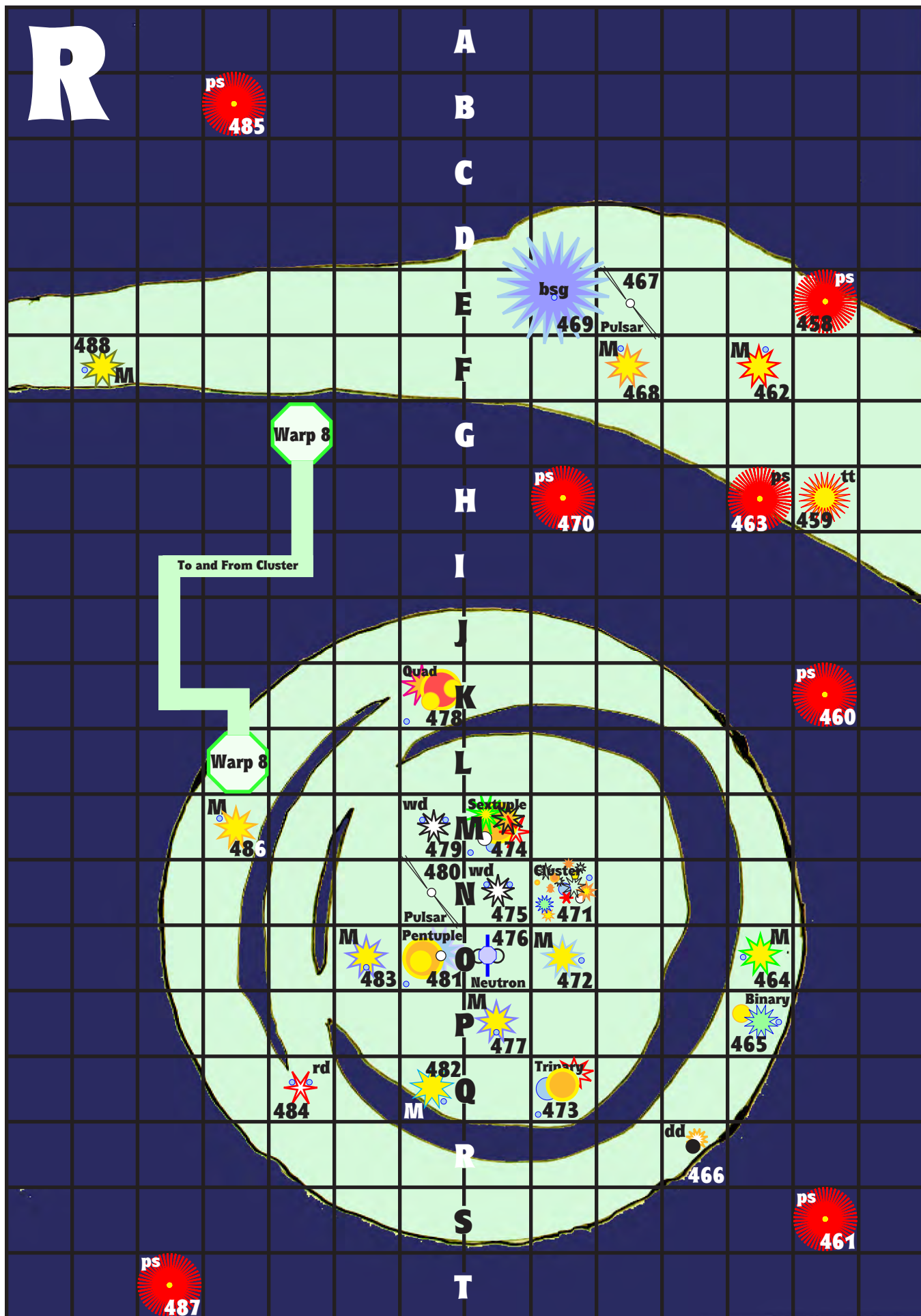




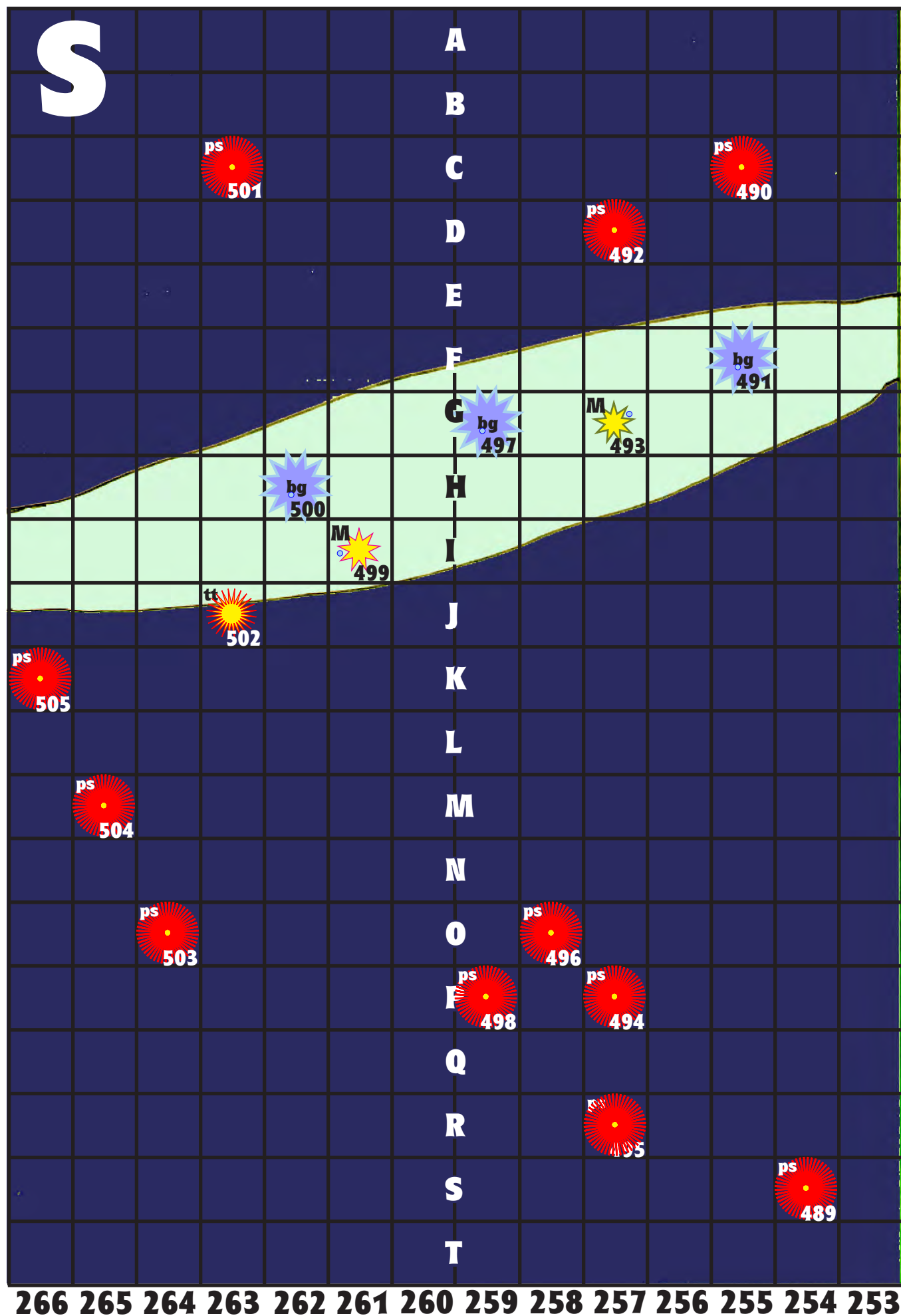


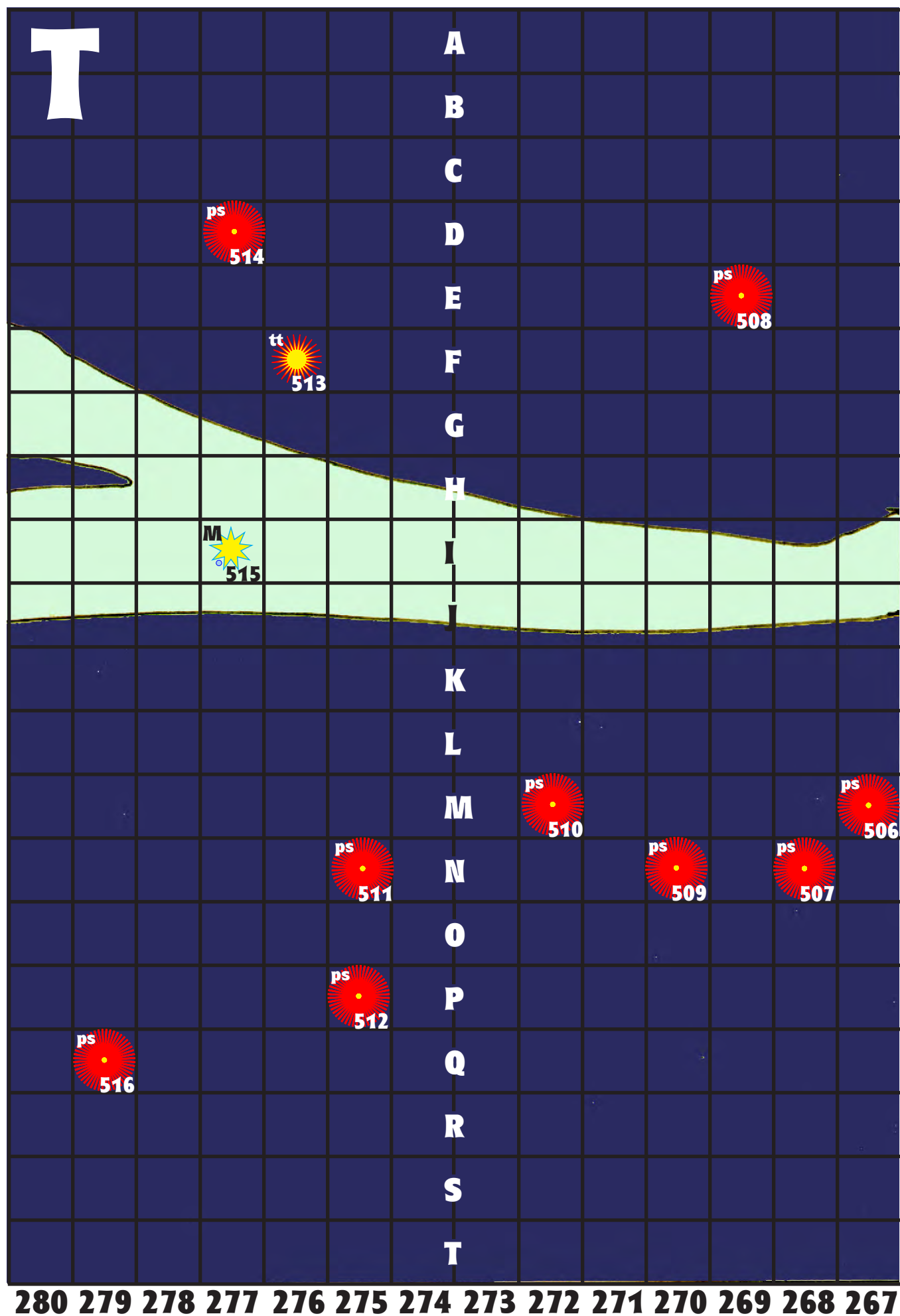


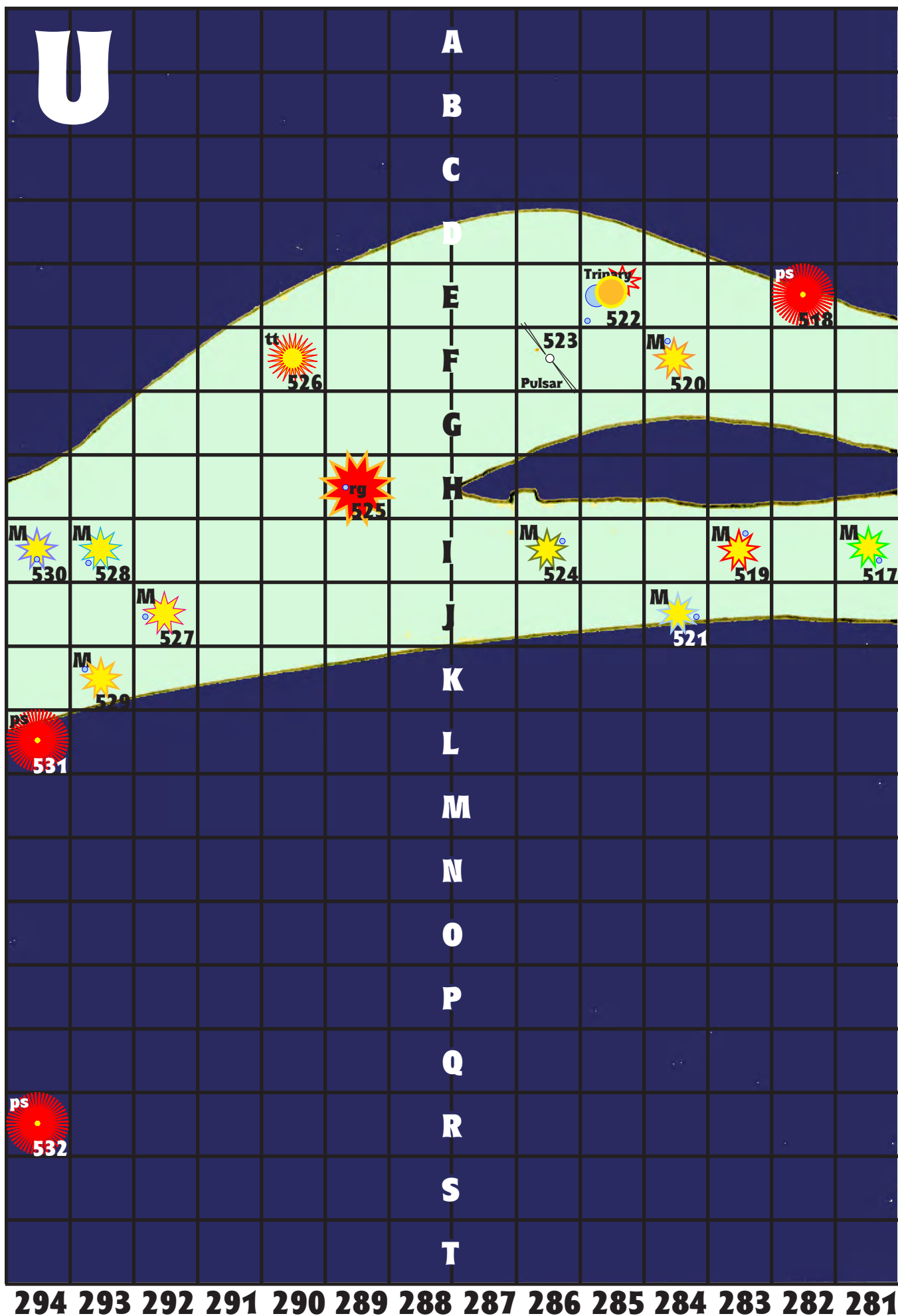


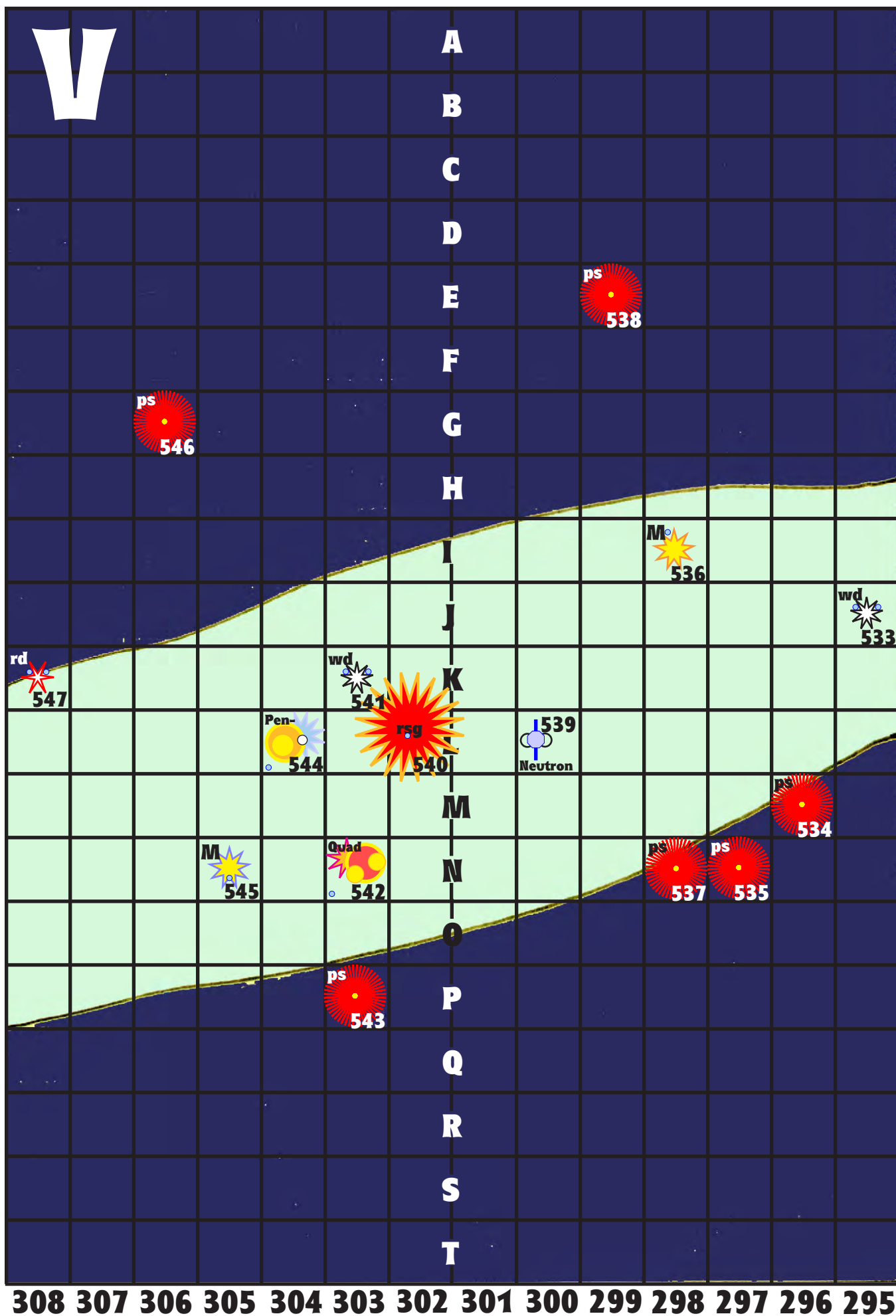


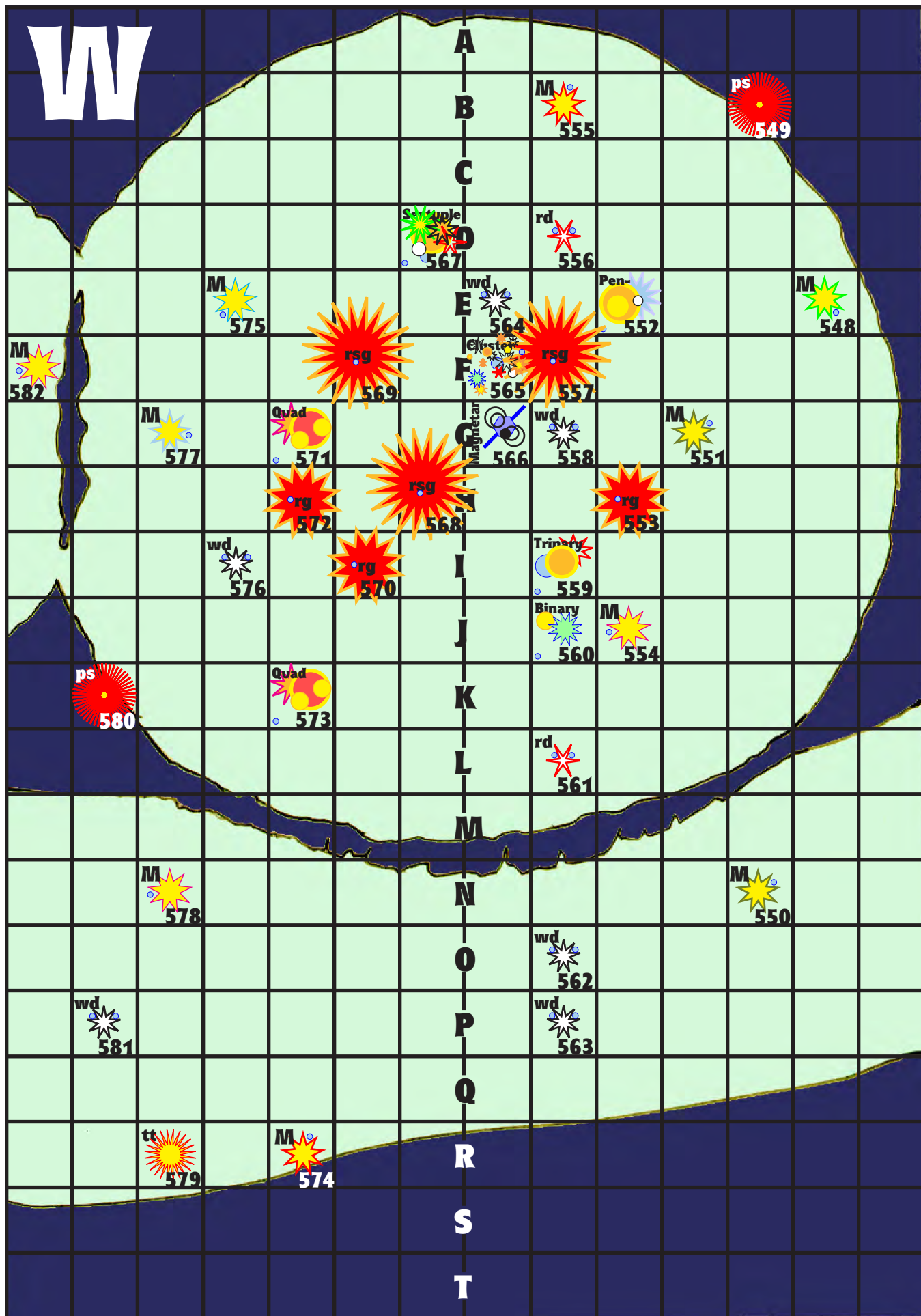
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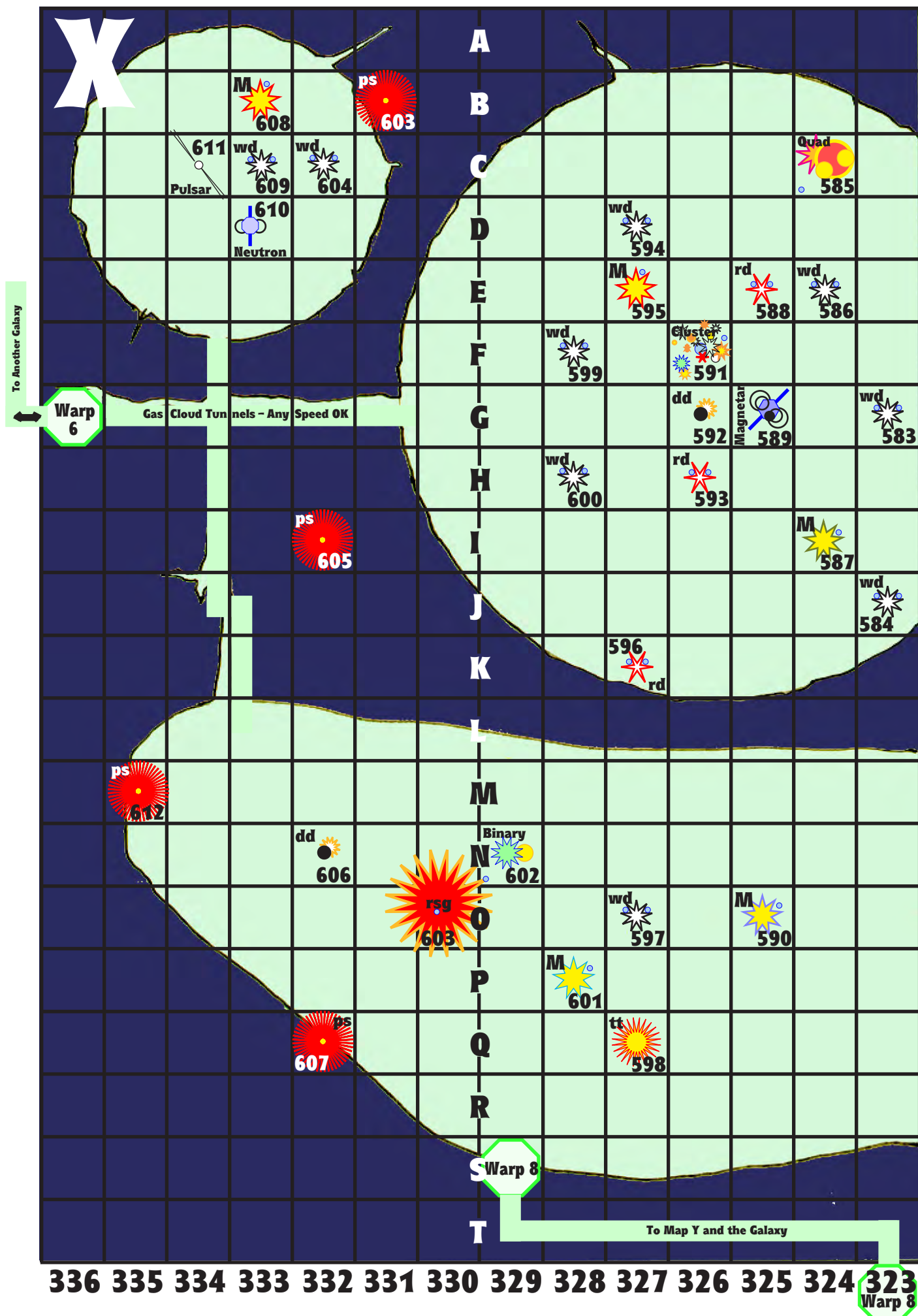






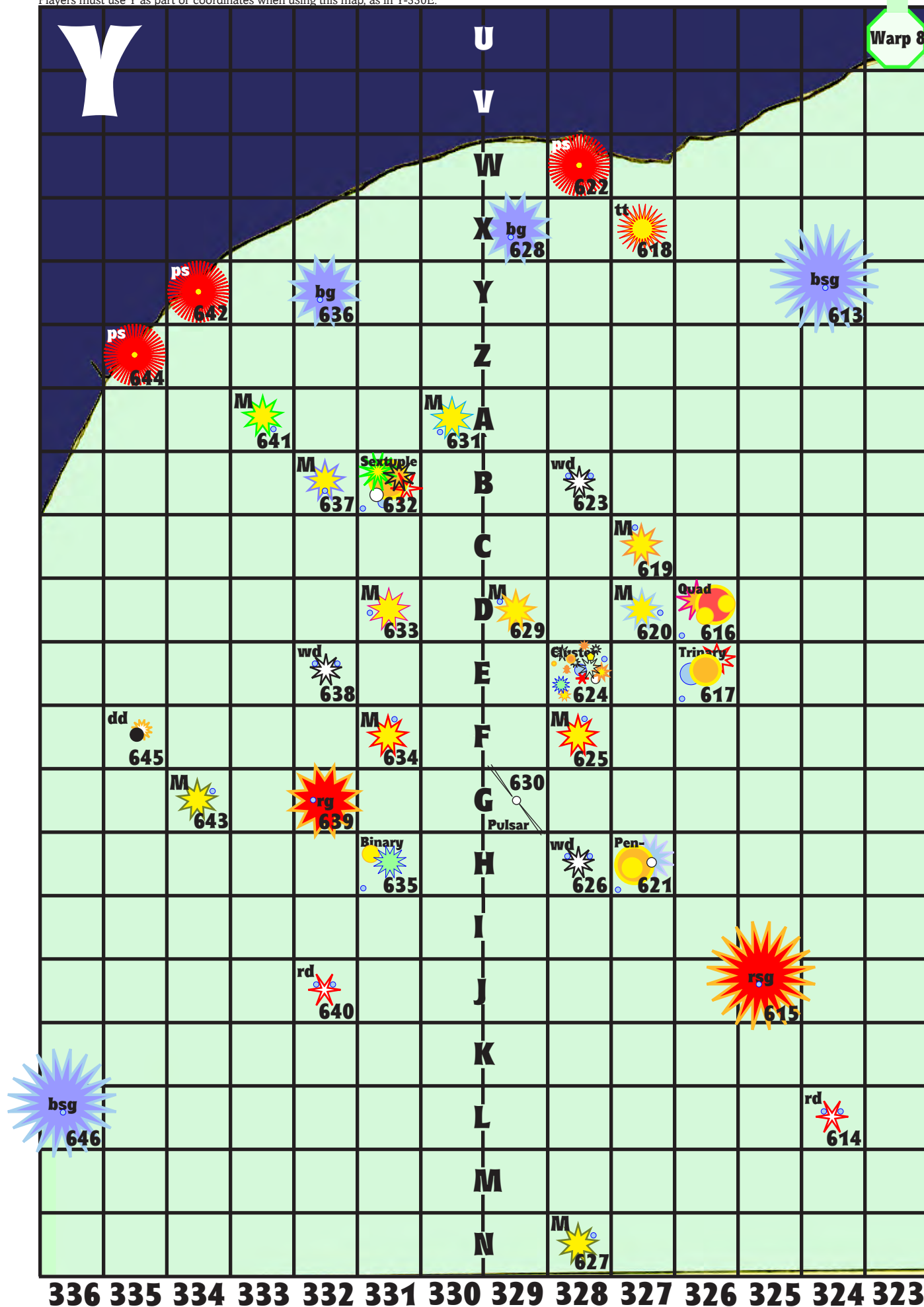


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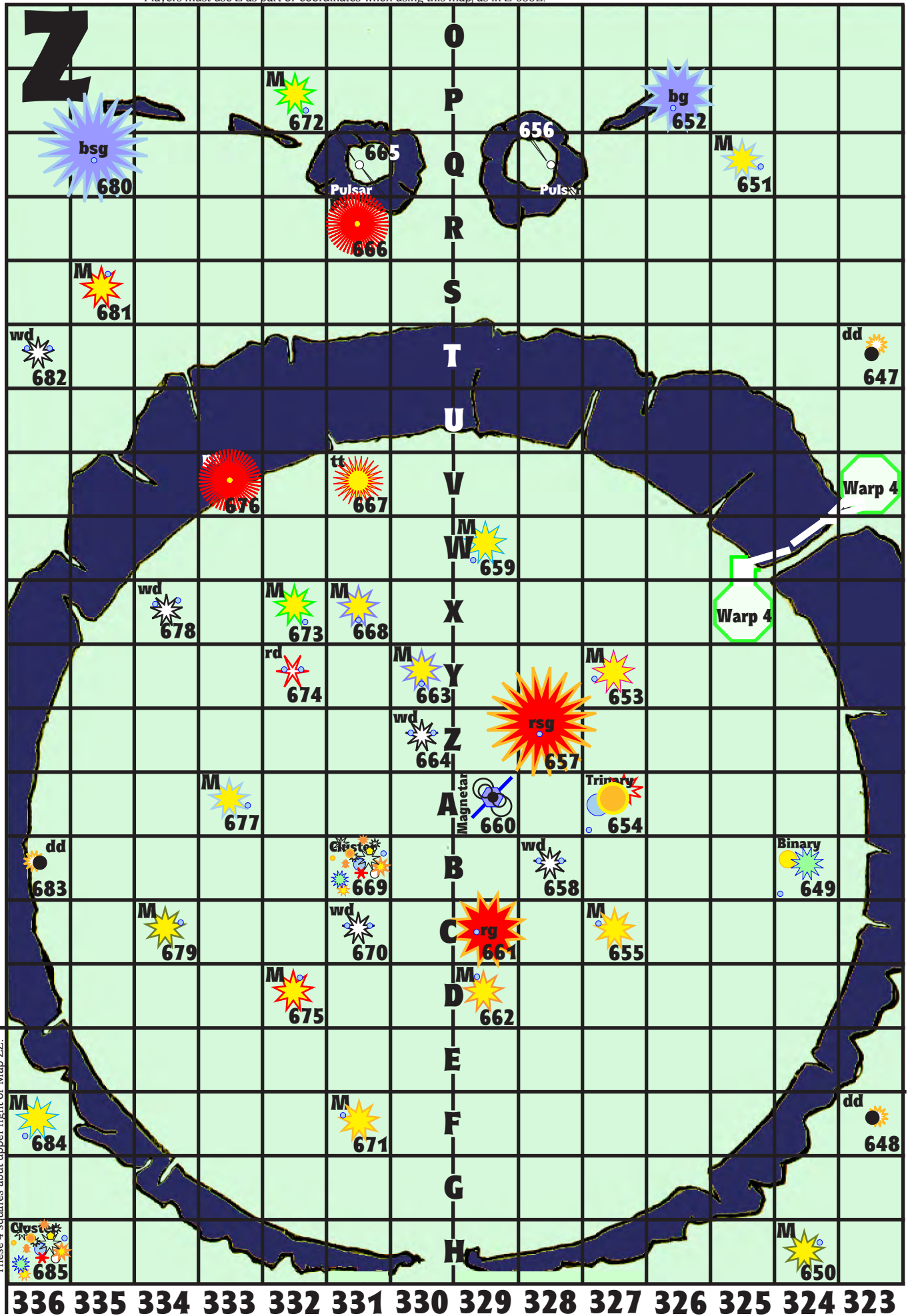


Players must use Y as part of coordinates when using this map, as in Y-330E.

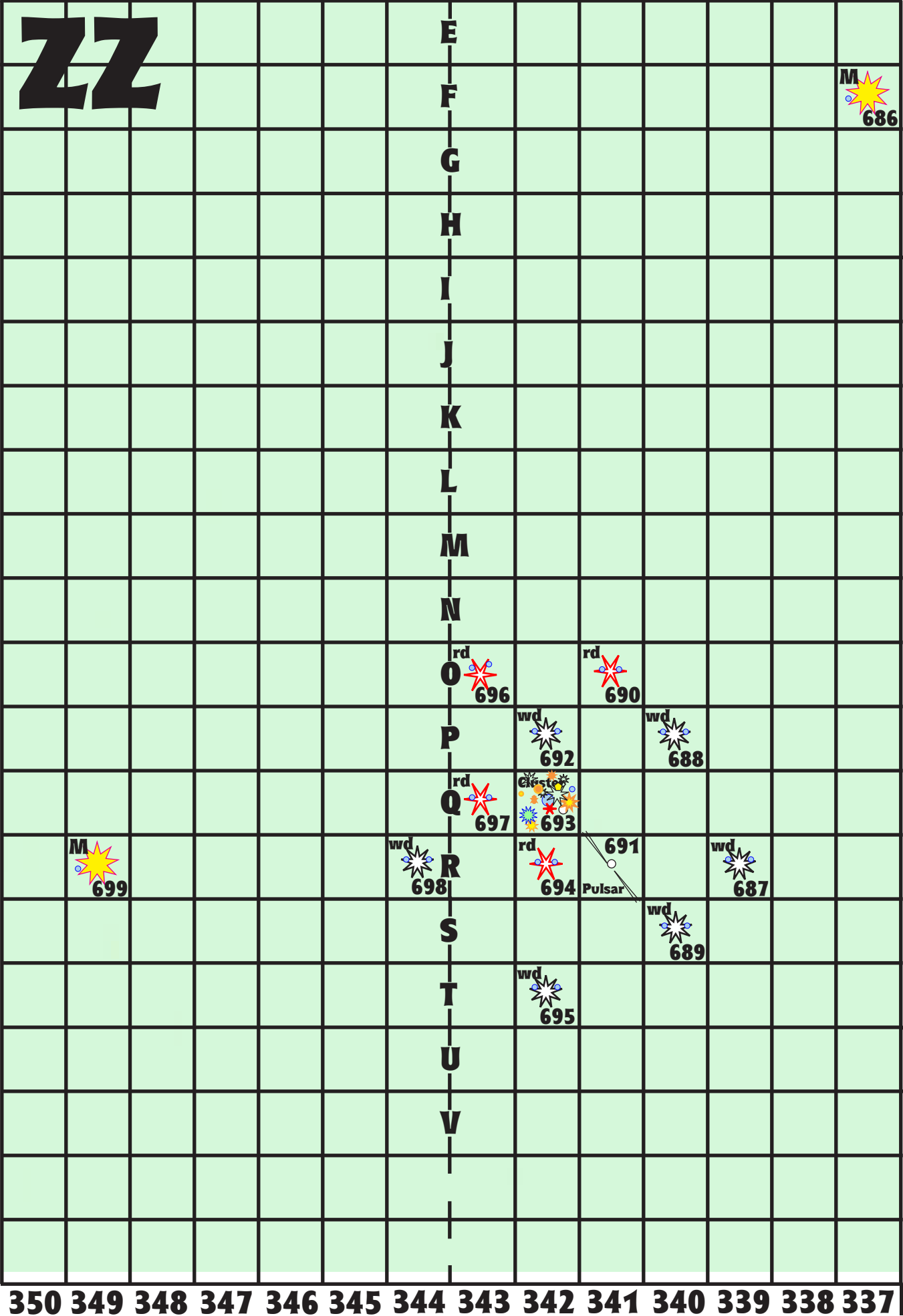
Warp 8



Players must use Z as part of coordinates when using this map, as in Z-333E.



Players must use ZZ as part of coordinates when using this map, as in ZZ-350X.

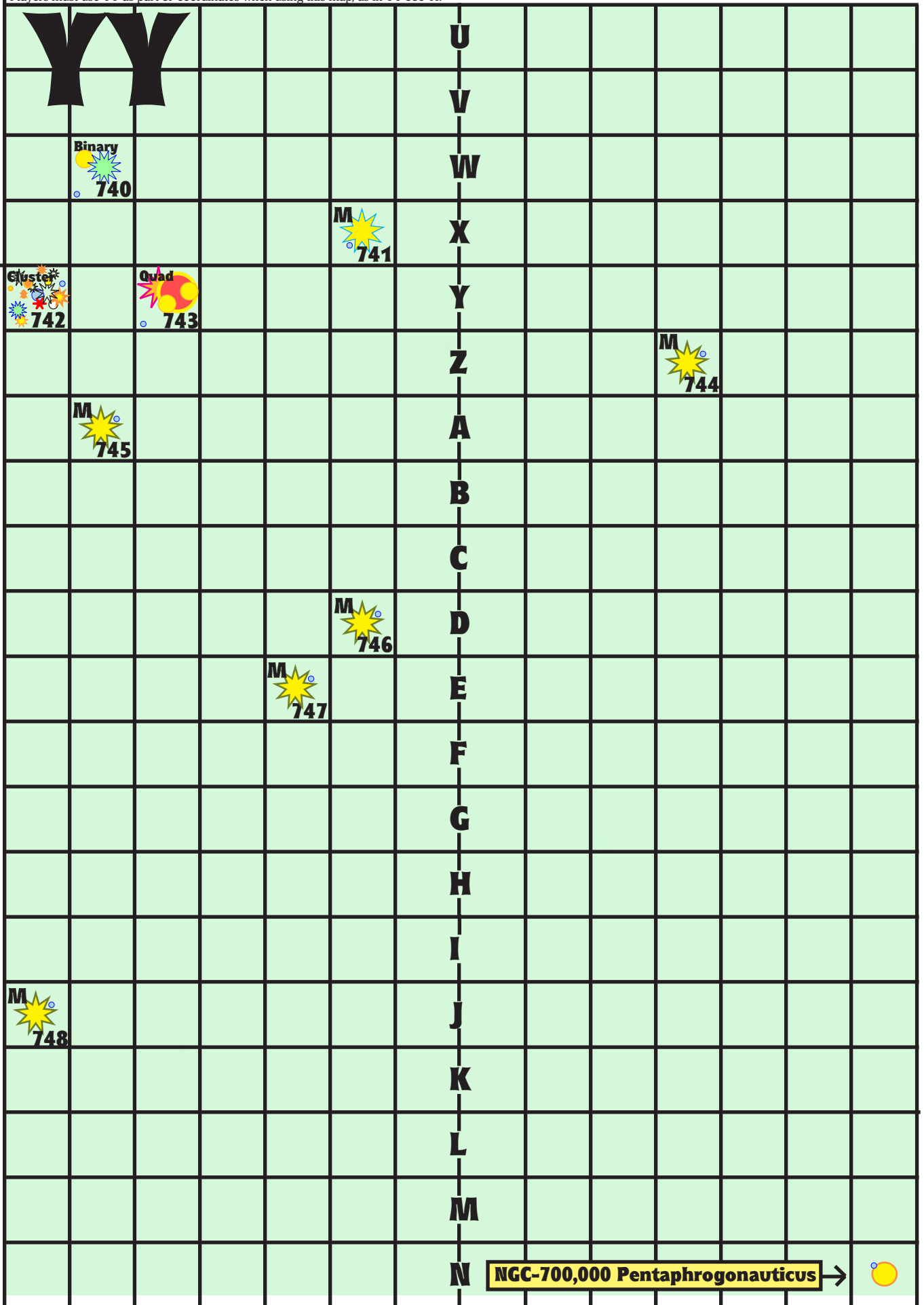


These 4 squares about lower left of Map Z.

These 4 squares about upper left of Map YY.

Players must use YY as part of coordinates when using this map, as in YY-335-H.

These 4 squares about lower left of Map ZZ.



336 335 334 333 332 331 330 329 328 327 326 325 324 323

Chapter 4



Denizens of Space



Star Map Features

The next few pages contain a description of all stars and other features that appear on the map in Space Centurions 11.

Blue Supergiant

Acronym: bsg

Battle Board: Planet of value with 1 moon (illustration p.114).

Production: TA-215 Bluu Mining Module (p.176) is half of team that produces bluu/radd worth 10-MT/year or 40-MT/Cycom. Must be paired with a TA-216 Radd Mining Module (see Red Supergiant and Red Giant stars). Only 1 Bluu Mining Module/ Radd Mining Module pair may operate per Blue Supergiant.

Descriptive: Short-lived, super-hot stars. Normally have barren planetary system.

Narrative: A ship lacking TA-101 Radiation Deflector and TA-102 Heat Deflector is lost.



Red Supergiant

Acronym: rsg

Battle Board: Planet of value with 1 moon (illustration page 114).

Production: TA-108 Radd Mining Module (p.176) is half of team that produces bluu/radd worth 10-MT/year or 40-MT/Cycom. Must be paired with a TA-215 Bluu Mining Module (see Blue Supergiant and Blue Giant stars). Only 1 Bluu Mining Module/ Radd Mining Module pair may operate per Red Supergiant.

Descriptive: Extremely large, cool-burning star. Normally have barren planetary system.

Narrative: A ship lacking TA-101 Radiation Deflector and TA-102 Heat Deflector is lost.



Blue Giant

Acronym: bg

Battle Board: Planet of value with 1 moon (illustration page 114).

Production: TA-215 Bluu Mining Module (p.176) is half of team that produces bluu/radd worth 10-MT/year or 40-MT/Cycom. Must be paired with a TA-216 Radd Mining Module (see Red Supergiant and Red Giant stars). Only 1 Bluu Mining Module/ Radd Mining Module pair may operate per Blue Giant.

Descriptive: Short-lived, super-hot stars. Normally have barren planetary system.

Narrative: A ship lacking TA-101 Radiation Deflector and TA-102 Heat Deflector is lost.



Red Giant

Acronym: rg

Battle Board: Planet of value with 1 moon (illustration page 75).

Production: TA-216 Radd Mining Module (p.176) is half of team that produces bluu/radd worth 10-MT/year or 40-MT/Cycom. Must be paired with a TA-215 Bluu Mining Module (see Blue Supergiant and Blue Giant stars). Only 1 Bluu Mining Module/ Radd Mining Module pair may operate per Red Giant. Also see TA-1010 Red Giant Life Importation & Exploration on p.432.

Descriptive: Extremely large, cool-burning star. Normally have barren planetary system.

Narrative: A ship lacking TA-101 Radiation Deflector and TA-102 Heat Deflector is lost.



Protostar



Acronym: ps

Battle Board: Planet of value has no moon or rings

Production: Used by TA-210/211 Hyggyns Mining Ship (HMS) (p.175) to get HOP

Descriptive: Coalescing gas cloud enters early stage of star formation (infant star).

Narrative: A visiting ship without a TA-100 Asteroid Deflector and a TA-102 Heat Deflector is lost.

T Tauri Star



Acronym: tt

Battle Board: Planet of value has no moon or rings

Production: Used by TA-210/211 Hyggyns Mining Ship (HMS) (p.175) to get HOP

Descriptive: Unstable young stars (teen-agers) before entering the main sequence.

Narrative: A visiting ship without a TA-100 Asteroid Deflector and a TA-102 Heat Deflector is lost.

NGC-700,000 (Pentaphrogonauticus)



Acronym: PPN

Battle Board: Same as for a Main Sequence Star.

Production: 50 MT for each GU landed on the planet of value.

Descriptive: An Eden-like paradise inhabited by intelligent Bog Phrogs and Sparkies. A full description of these creatures and the planet they inhabit is provided in an unpublished novel, "The Dreadnoughts of Pentaphrogonauticus."

Narrative: The willing and gullible inhabitants of this prodigiously rich planet are helplessly addicted to Goodie Units (GU) and will pay 50 MT for each GU dropped on the planet of value. The maximum number of GU that may be dropped per Cycom by each empire is 30. The MT goes into an empire's account at IMLO Bank (p.144) after the end of the Cycom in which the GU were dropped.

Example: Empire A drops 16 GU (cost of 256 MT) on PPN and gets 800 MT in its IMLO Bank account to start the next Cycom. A drop of 10 GU would earn 500 MT at a cost of 160 MT for the GU, producing a net gain of 340 MT.

NGC-700,000, more commonly called Pentaphrogonauticus, pays a substantial amount each Cycom for IMLO protection. The protection contract forbids any ship except an unarmed merchant or a 0-Gun Spy (TA-297 p.205) from warping into the star.

Income derived from PPN activity is not reported on the Warp Ripple chart (p.104). The only way to determine how much income an enemy empire is gaining from dropping GU on PPN can only be determined by stationing a probe or unarmed ship at the PPN star.

Note that the TA-900 series of Warp Gate cannot be used with a map that uses the NGC-700,000 concept.

White Dwarf

Acronym: wd

Battle Board: Double planetary system.

Production: TA-250 series of Dimwits, p.197, are used to produce ¥ by digging up remains of long-lost civilizations and sifting for valuable TAs. Only even-numbered White Dwarfs have lost civilizations.

Descriptive: Small hot stars left after giant stars blow off their outer shells.

Narrative: Amphibian Empires will have their home planet located at a White Dwarf. No deflectors are required to visit a White Dwarf.



Red Dwarf

Acronym: rd

Battle Board: Double planetary system.

Production: TA-250 series of Dimwits, p.197, are used to produce ¥ by digging up remains of long-lost civilizations and sifting for valuable TAs. Only even-numbered Red Dwarfs have lost civilizations.

Descriptive: Small stars that never grow large enough to become Main Sequence.

Narrative: Pirate Empires will have their home planet located at a Red Dwarf. No deflectors are required to visit a Red Dwarf.



Dead Dwarf

Acronym: dd

Battle Board: Single large “planet of value” (bottom of p.114) with 1 moon.

Production: All Dead Dwarfs can be developed into a production center star (only) using 1 GU plus 2 FY. TA-30 Dead Dwarf Production Center and TA-31 Dead Dwarf Telescope (both p.152) are prerequisites.

Descriptive: Burned out star whose surface is hospitably warm and has an atmosphere friendly to organic life. The Dead Dwarf is an Earth-sized clinker that is in close orbit around an Orange Dwarf star.

Narrative: May not be visited by ships until TA-31 Dead Dwarf Telescope (p.152) has been developed. No deflectors are required to visit a Dead Dwarf.



White Hole

Acronym: wh

Battle Board: None

Production: None

Descriptive: A figment of quantum physics and the slightly daft proponents of same.

Narrative: A White Hole provides one-way transportation to a far away location. Unfortunately, it is a one-way trip. Another White Hole must be found to have any hope of returning. Only the long map has White Hole entrances in Maps BB, CC, DD, EE and I. Movement example: Cycom 1 – Fleet travels toward White Hole

Cycom 2 – Fleet enters White Hole and moves instantly to exit square

Cycom 3 – Fleet departs White Hole exit using normal warp speed.

Ships cannot rendezvous or fight in a White Hole's entrance or exit.



White
Hole
Exit
Square



White
Hole
Re-Entry
Square

Pulsar

Acronym: p

Battle Board: Special presentation of Pulsar.

Production: Source for small quantities of Warp Juice (WJ).

Descriptive: Collapsed remains of giant or supergiant star. Emits powerful pulses of electromagnetic radiation as it spins at a high rate of speed and has a strong magnetic field.

Narrative: Doubles any and all ship's warp speed upon ship's departure. Ship may also depart at normal speed. No limit on direction of approach or departure. A visiting ship without a TA-101 Radiation Deflector and a TA-103 Magnetism Deflector is destroyed.

Star is a minor source of Warp Juice (WJ), which is mined by the TA-200 Warp Juice Mining Module (wjm¹) (p.174). Warp Juice is essential for fleets to engage warp drive. Star can serve any number of wjm. One wjm at a Pulsar produces enough warp juice to power 1 fleet per Cycom.



Neutron Star

Acronym: n

Battle Board: Special presentation of Neutron Star.

Production: Source for moderate quantities of Warp Juice (WJ)

Descriptive: Collapsed remains of giant or supergiant star. Emits powerful pulses of electromagnetic radiation as it spins and has a magnetic field.

Narrative: Star is a moderate source of Warp Juice (WJ), which is mined by the TA-200.2 Warp Juice Mining Module (wjm²) (p.174). Warp Juice is essential for fleets to engage warp drive. Star can serve any number of wjm. One wjm produces enough warp juice to power 2 fleets per Cycom. A visiting ship without a TA-101 Radiation Deflector and TA-103 Magnetism Deflector is destroyed.



Magnetar

Acronym: n

Battle Board: Special presentation of Magnetar

Production: Source for large quantities of Warp Juice (WJ)

Descriptive: Collapsed remains of giant or supergiant star. Emits powerful and intermittent electromagnetic radiation and has a super-powerful magnetic field.

Narrative: Only star that is abundantly rich in Warp Juice (WJ), which is mined by the TA-200.4 Warp Juice Mining Module (wjm⁴) (p.174). Warp Juice is essential for fleets to engage warp drive. Star can serve any number of wjm. One wjm produces enough warp juice to power 4 fleets per Cycom. A visiting ship without a TA-101 Radiation Deflector and TA-103 Magnetism Deflector is destroyed.

Players can agree before the start of a game that 1 Magnetar will explode. The resulting Gamma Ray Burst (GRB) will destroy all civilized assets in the map section in which the Magnetar is located. All stars in that map section then will be worthless for the remainder of the game. A GRB will always take place on year 1 of Cycom 65.



Multiple Stars – Home Stars

Acronym: Cluster, Sextuple, Pentuple, Quadruple, Triple, Binary. A player will name his empire.

Battle Board: Full planetary system, which is assumed to be located at a Main Sequence or Dwarf star within the multiple system.

Production: 20-MT/year or 80-MT/Cycom when fully developed (see Factories, page 81). Starting home star for all empires. Relocated home star must be at a Multiple. Home stars do not have a GU; the populace is inherently loyal.

Descriptive: Multiple Star system whose components are locked in complex orbits that foster orbital instability for stars, planets and hazards.

Narrative: When used as a home star, no deflectors are needed by the occupying empire. However, a visiting ship from another empire without TA-100 Asteroid Deflector, TA-101 Radiation Deflector, TA-102 Heat Deflector, TA-103 Magnetism Deflector and TA-104 Gravity Deflector or TA-110 Super Deflector or A-150 Universal Deflector is destroyed. An empire that relocates its home star may do so only to another Multiple Star and will not need any deflectors for ships. All other Multiple Stars that are *not* host to a home star will destroy any ship without the above deflectors. In other words, a ship visiting a multiple star requires all hazard deflectors unless it is your home star or is becoming your home star that Cycom.

A home star is the only star at which TAs may be developed.

MT production from all stars is routed to TA-1 IMLO Bank (p.144) and is available for use at any time at any production center star, including the home star.

A home star or production center star cannot build anything if an enemy warship is able to remain within its own gun range of the planet of value after battles have been resolved. A home star or production center star can repair any number of ships per year if the ship(s) spend one full year at the planet of value in a helpless status. Rules for repairing ships, p.136.

A home star does not need Shipyards to build ships. It always has 1 TA-1032 Shipyard SY³ as part of its basic capability whether or not the star is moved.

A very dense and fast-moving dust cloud occludes each home star the last year of the first Katun (calendar, p.81). Home stars are then no longer visible to or findable by other players. Fleet activities and warp ripple reports are unaffected. Rule eliminates home star



Alternate
universe
depictions



Main Sequence Stars – 1-MT/Year

Acronym: ms Players may select a name for their production center stars.

Battle Board: Full planetary system.

Production: 1-MT/year. Can be developed into a production center star by installing factories (FY) (p.82). Production gained by colonizing a main sequence star using 1 Goodie Unit (GU) (p.81) begins the Cycom after the star is colonized. MT shows up in the IMLO Bank account for the start of the second Cycom after colonization. Production lost because of enemy action begins the Cycom after the loss of the star.

Descriptive: G Class Main Sequence Star (yellow) in SC 11.

Narrative: Only colonizable star on the playing map, except for a Multiple Star's home star and a Dead Dwarf production center star (p.152). Produces 1-MT/year if 1 GU is dropped on the planet of value. Returns to neutral if colonizing GU is destroyed by gunfire (range 10 or closer by 5-gun ship or larger) from enemy ship (GU on p.81). Enemy cannot land a GU on a star until the opposing GU is destroyed by gunfire.

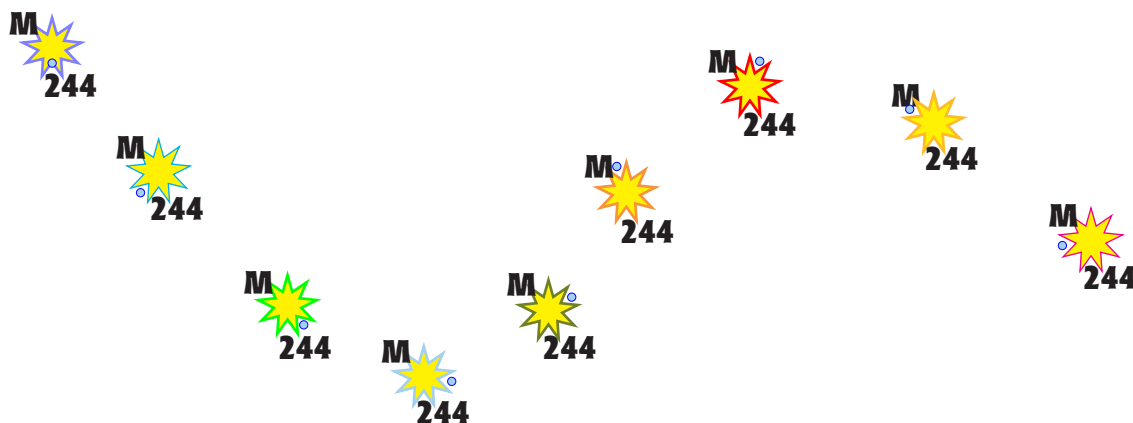
An empire may colonize any number of 1-MT/year Main Sequence Stars.

MT production from all stars is routed to IMLO Bank and is available for use at any time at any production center/home star. These are the only stars that can build things.

A home star or production center star cannot build anything if an enemy 5-gun warship or larger is able to remain within range 10 of the planet of value after battles are resolved.

Only 1 Main Sequence Star per lettered map section (p.30-65 and p.329-354) may be developed into a production center star per player (excluding Dead Dwarf stars, p.69 and TA-22 Under-the-Rock Pariah cultures, p.151). Opposing players can each create 1 production center star on a Main Sequence Star per map section. In a 5-player game, for example, the maximum number of production center stars (on Main Sequence Stars) per map section would be 5. This limitation does not include Dead Dwarf Stars. If a player loses a production center star (on a Main Sequence Star) to another player, he may build another production center in that map section. If he loses that, he may build a third, etc. This process may result in quite a number of Main Sequence production centers on one map section!

No more than 10 factories (FY) (p.82) may be emplaced on a Main Sequence Star.



Main Sequence Stars – Plague Planets

Acronym: m

Battle Board: Full planetary system.

Production: None

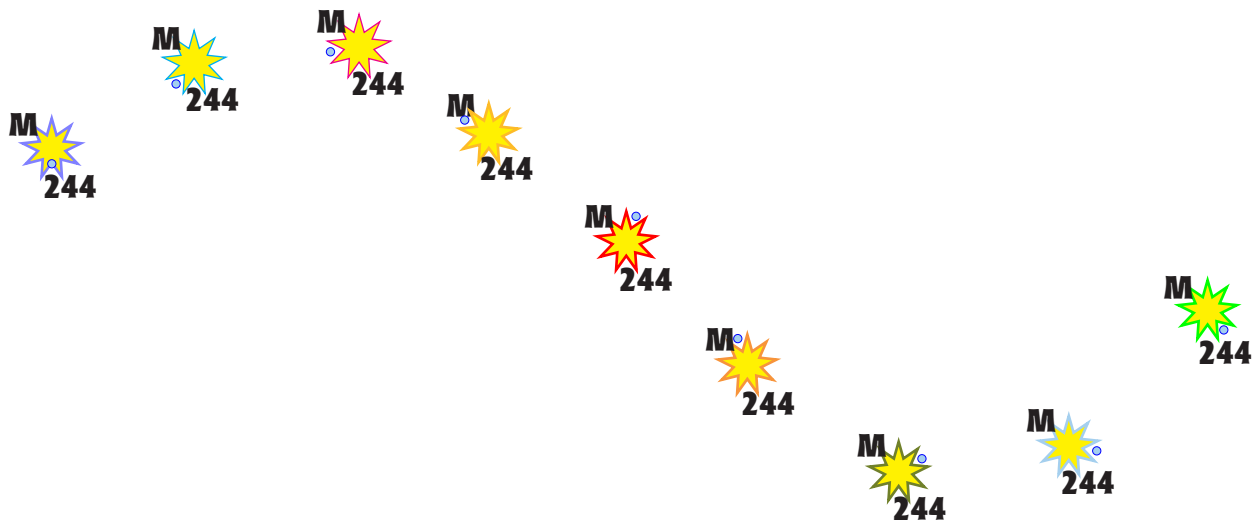
Descriptive: G Class Main Sequence Star (yellow) in SC 11. Plague Planet stars have the planet of value infested with a fantastically contagious disease of a most violently deadly nature. The incubation period for the disease is to the end of the current cycle of moves. The incurable disease vanishes after the next Cycom (cycle of moves).

Narrative: Each player secretly **plots 1 Plague Planet** at a Main Sequence Star on the map before the game starts. The player lists the location of the Plague Planet (and other hazards) and consults that list each Cycom to determine if any ship visits that star during the course of the game. Any ship or fleet entering a star square containing a plague planet is lost at the end of the current Cycom. That player must notify the other player of the loss. Hazards Chart, p.106.

Long map players may not put a Plague Planet on Maps BB, CC, DD or EE.

The player visiting the Plague Planet loses not only his ship or fleet but also half his MT production the Cycom after the fateful visit to the Plague Planet. TA purchases are suspended during that Cycom. Any ship following the lead ship into a Plague Planet is also lost.

A player is immune to that planet's plague the Cycom after the MT penalty is paid. There



Gas/Dust Clouds

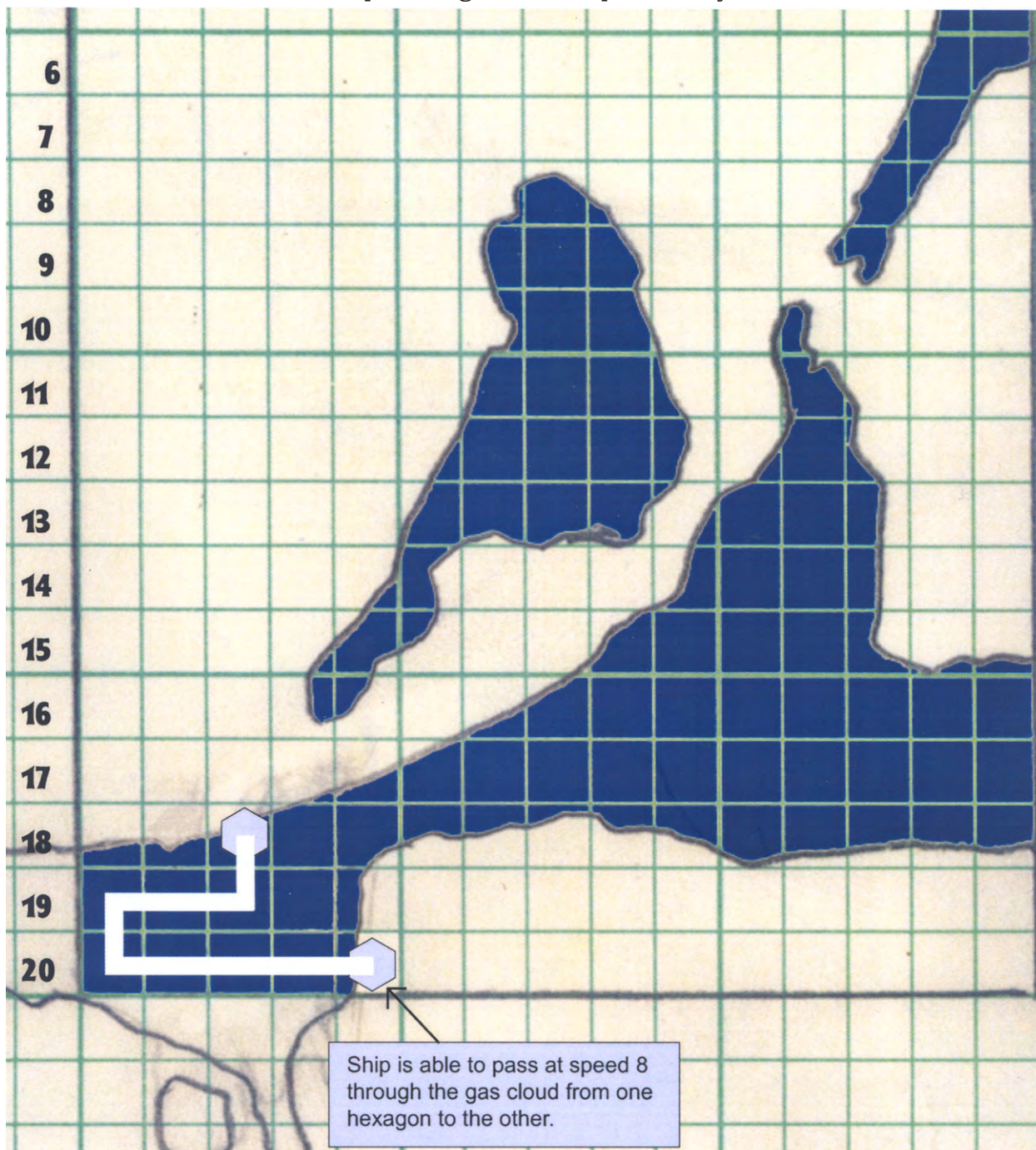
Acronym: None

Planets: None

Production: None

Descriptive: Large and dark-colored amorphous objects that clutter the star chart. Frequently drawn with a “Swiss Cheese” pattern of connecting spherical gaps.

Narrative: Ships/fleets cannot warp either into or over a gas/dust cloud. A ship or fleet can safely warp into a star square that is partially obscured by a gas/dust cloud. Map shows 1 “tunnel” that is an exception to gas cloud impentrability.



Pirate Empires

Names: Pirate, Buccaneer, Privateer, Raider, Corsair, Brigand, Freebooter, Marauder.

Battle Board: Appropriate to the star at which confrontation ensues.

Production: None

Descriptive: Pirate Empires are roaming buccaneers of space that fall upon any ship or fleet that warps into a star within their boundaries.

Narrative: Each player secretly **plots 1 Pirate Empire** on the board before the game starts. A Pirate Empire will consist of 5 stars that will be loosely clumped on the map. The star types can be anything but must not include any of the following: Exploding Star – Nebula, Magnetar, Pulsar or Dead Dwarf Star.

The player lists the location of the Pirate-infested stars (and other hazards) and consults that list each Cycom to determine if any ship visits that star during the course of the game. Any ship or fleet entering a star square containing a Pirate Empire will be attacked at the discretion of the Pirate as described below. The player who placed the Pirate has the discretion of not telling the intruder of the Pirate's presence. Only the star visited will be revealed to the hapless intruder. Also see Hazards Chart, p.106.

Long map players may not put a Pirate on Maps AA, BB, CC, DD or EE.

If the Pirate fleet appears to be stronger than its victim, it will attack. If the victim(s) appear to be stronger, the pirates will make every attempt to escape. If a battle results, the player placing the Pirate Empire will be responsible for fighting the pirate's ships.

Any losses a pirate fleet suffers in battle will not be replaced, unless it succeeds in capturing a ship. Captured ships are instantly repaired, upgraded to speed 8 and become part of the pirate fleet.

Each Pirate Empire operates:

|mj|s10//CA.0ud|*⁹⁶|bk

|mj|s10//CA.1ud|*⁹⁶|bk

|mj|s10//S.2ud|*⁹⁶|fff

|mj|s10//S.3ud|*⁹⁶|fff

|mj| is TA-806m Mark XIII Sub-Warp Drive, p.311

s is TA-600s Ambush Drive, p.306

ud is TA-150 Universal Deflector, p.170

*⁹⁶ is TA-488.15 Mark XV Unguided Torpedo, p.266

bk is TA-16 Blockade, p.149

fff is TA-399 Mark III Fleet Formation Keeper, p.233

// is TA-394 Enhanced Maneuverability, p.232

Gas/dust clouds do not pose a navigational obstacle to pirate ships (they know the area).

A Pirate Empire and an Amphibian Empire or two Amphibian Empires may overlap, in which case both empires operate normally.

Two Pirate Empires may overlap, in which case either, both or none of the Pirate fleets may attack an intruder. A player may colonize a Main Sequence star claimed by a Pirate if that player deploys a strong enough fleet to successfully sustain the operation. Even so, the Pirates will continue to operate after a strong colonizing force leaves the area. This strategy is required even by the player who placed the Pirate Empire at gamestart and can otherwise safely intrude upon Pirate territory.

Amphibian Empires

Names: Caecilian, Salamander, Phrog, Tode, Mold, Algae, Fungus and Virus.

Battle Board: Appropriate to the star at which confrontation ensues.

Production: None available to players.

Descriptive: The Amphibian Empires are small colonies of space-faring sentiences that are mysterious and peaceful. They do not appear to have ships, although stellar travel is possible by some form of teleportation. The aliens cannot be attacked because they are in cahoots with IMLO and its enforcement fleet. Amphibians' stars cannot be colonized.

Narrative: Each player secretly **plots 1 Amphibian Empire** on the board before the game starts. An Amphibian Empire will consist of 5 stars that should be clumped on a single map section. The star types can be anything, but must not include more than 1 Main Sequence Star and no Exploding Star – Nebula, Magnetars or Dead Dwarf Stars.

The player lists the location of the Amphibian-occupied stars (and other hazards) and consults that list each Cycom to determine if any ship visits that star during the course of the game. See Hazards Chart, p.106. Any ship visiting one of their stars is granted 2 Technological Advancements of the visiting player's choice the Cycom after contact and is told never to come back. The TA choices cannot be taken later. The TAs taken must be in order in that a Mark III weapon, for example, cannot be taken if the Mark II has not already been developed. However, sequential TAs can be taken, so that a Mark II and Mark III could be accepted simultaneously.

Only the star visited will be revealed to the intruder. A subsequent Cycom's visit to any of the Amphibian Empire stars will result in loss of the visiting ship. Subsequent visits will not earn free TAs. Risk of loss does not apply to multiple visits made during the first Cycom's encounter.

Gas/dust clouds may separate Amphibian-held stars (they know the area).

A Pirate Empire and an Amphibian Empire or two Amphibian Empires may overlap, in which case both empires operate normally.

A player who places an Amphibian Empire may also visit that empire to acquire the 2 freebie TAs. Repeat visits are banned.

An Amphibian cannot be located in a map section with a very low star population, such as long map sections S and T and any other that can be blocked out and rendered useless. Also, long map players may not put an Amphibian on Maps AA, BB, CC, DD, EE or YY.

A Sparky directs a diverse group of monsters indigenous to Vivipara. A bog phrog, center, is reasonably intelligent. The other two large creatures range from dull to stupid. A Sparky is highly intelligent and gets his name from a proclivity for arranging electrical shocks, which makes him shriek with joy. They are the electricians, electronics technicians and computer programmers for enormous space-faring super dreadnoughts.



Xenophobiacs

Name: Xenophobiac as in 10/XX.34, etc.

Battle Board: Located at a Multiple or Giant Star May not be at any player's home star.

Production: None

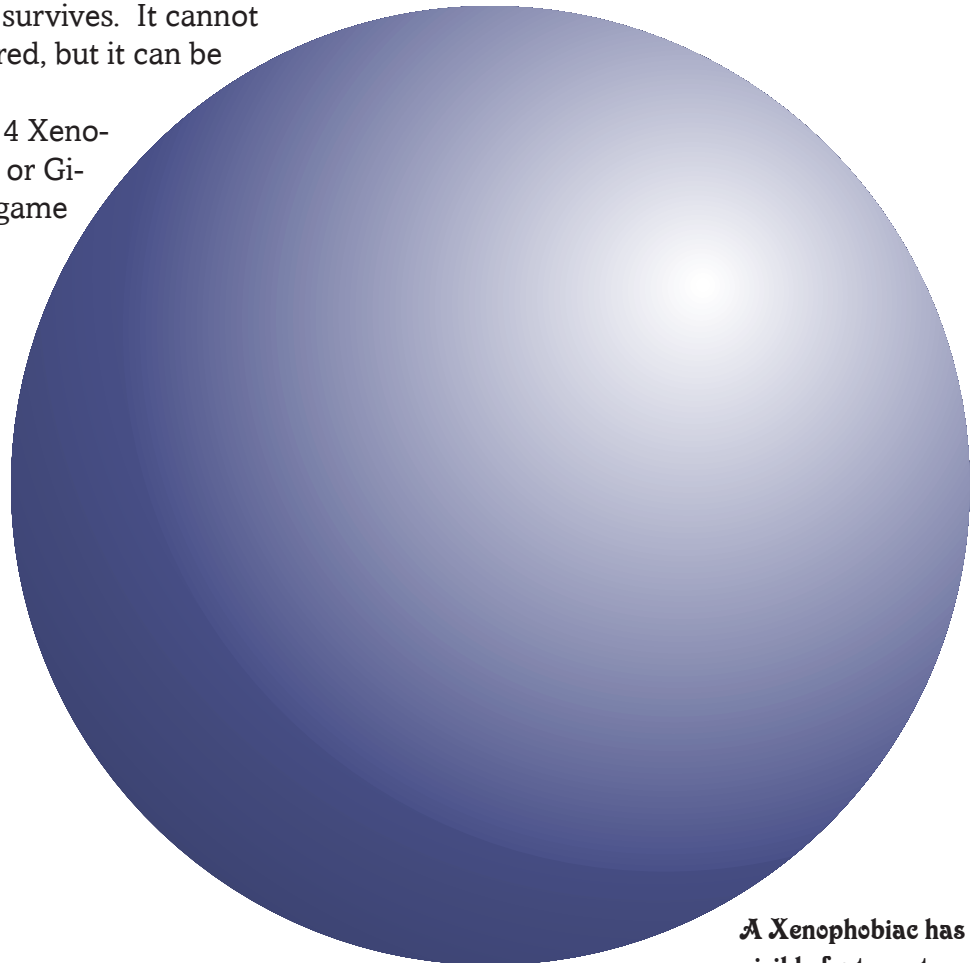
Descriptive: Xenophobiacs are massive war machines left behind by the genocidal Xenophobic Empire of antiquity. It was an empire noted for its intolerance of certain life forms and intemperate manner of dealing with factions within its own ranks.

Narrative: A Xenophobiac has 120 guns, speed 10 on the battle board, no warp capability and no TAs. It has superior speed to anything, including any mark of TA-600 series of Ambush Drive, p.306, in an extended chase. It has unlimited maneuverability. It will repair itself after a battle it survives. It cannot be hulked and captured, but it can be destroyed.

Each player plots 4 Xenophobiacs at Multiple or Giant Stars before the game starts. See Hazards Chart, p.106.

The player will consult his Hazards Chart each Cycom to determine if any ship visits that star. Any ship or fleet entering a star square containing a Xenophobiac will be attacked – no exceptions.

A hazard cannot be located in a map section with a very low star population.



A Xenophobiac has no visible features to mar its smooth, spherical surface. The massive war machine uses overwhelmingly powerful weapons to exterminate its enemies. This fast-moving behemoth has no friends, so that means you, babycakes.

Exploding Star – Nebula

Acronym: Qw The acronym comes from Qw, which was the appellation given eons ago to an unsuccessful stellar empire.

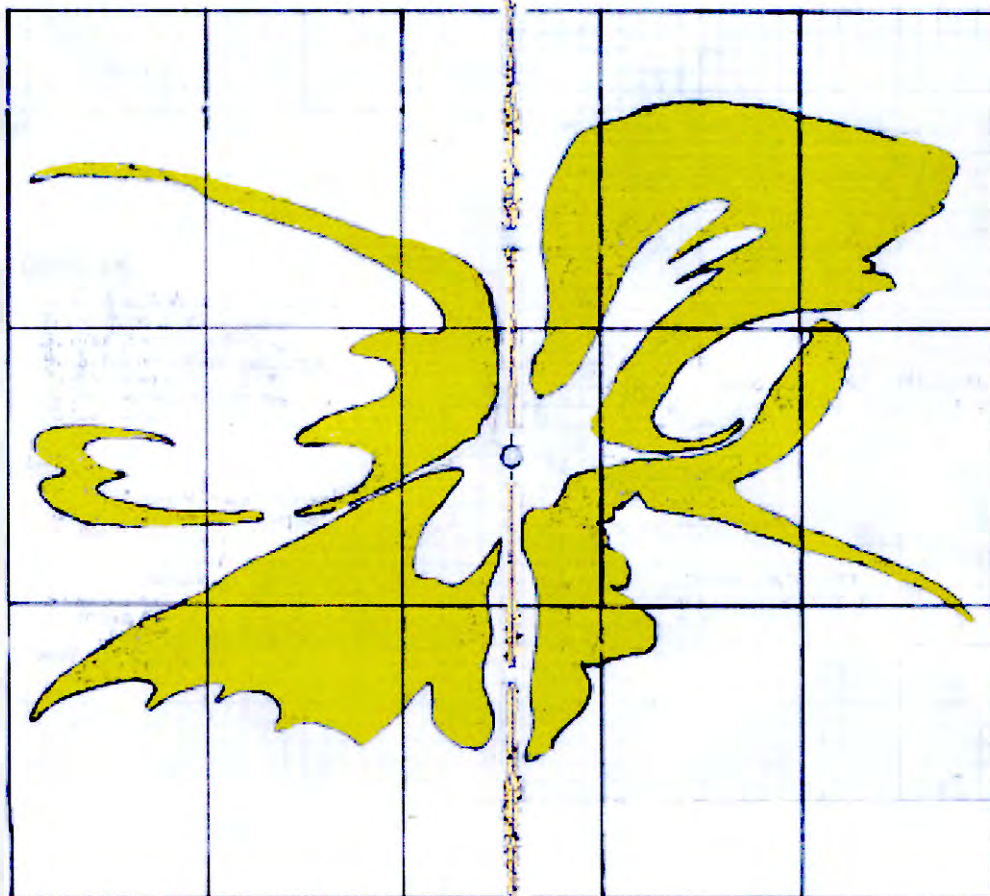


Battle Board: Specialized battle board that appears with TA-230 Diamond Trader starting on p.179.

Production: None. See TA-230 Diamond Trader starting on p.179 for details on how to mine mastadon-sized diamonds from the planet of value at this star.

Descriptive: A white dwarf that was a red giant until it recently exploded.

Narrative: TA-230 Diamond Trader is a specially equipped warship that gathers gigantic diamonds from the scorched surface of a planet orbiting a star that has exploded. The enormous diamonds, which range in size from boulders to bolides, are so valuable that empires will import vast numbers to satiate the demands of an insatiable populace. The resulting trade deficit so unbalances an empire's economy that war usually results.



Chapter 7



Ships, Guns, Damage



Merchant Ships

Designation	Name	No. of Guns	GU Capacity	Speed vs. MT Cost					Base 1 Cost
				8	7	6	5	4	
AA	Super Cargo Ship	0	17	500	405	324	275	243	162
A	Alpha Cargo Ship	0	12	448	350	280	238	210	140
B	Beta Cargo Ship	0	8	346	270	216	184	162	108
C	Charlie Cargo Ship	0	4	230	180	144	122	108	72
D	Delta Cargo Ship	0	2	154	120	96	82	72	48
E	Echo Cargo Ship	0	1	102	80	64	54	48	32
Cost Multiple vs. Speed				3.2	2.5	2	1.7	1.5	1

Merchant Ships may mix cargo of FY, GU, QP, etc.

All sizes of Merchant Ships have unlimited warp drive.

Ship Identification

All ships appearing in a game must be identified by speed/maneuverability/size/hull number/TAs. Speed, size and nationality are visible to any range on the battle board.

6/Z.2ad|rd|td|+++ (6-speed, basic maneuverability, Super Dreadnought, hull number 2, Asteroid Deflector, Radiation Deflector, Mark II Torpedo Deflector, Mark III Phyton Torpedo). The vertical slash | is used to separate TA designations.

6/D.21 [2 GU] (6-speed, basic maneuverability, Delta Cargo Ship, 2 GU cargo).

Base Cost

The “Base Cost” of a ship refers to the cost according to its speed/size designation. Examples: The base cost of a 7/B (above) is 270 MT. The base cost of a 6/Z (p.131) is 484.

The “Base 1 Cost” of a ship is given in the right-hand column (above and on p.131). The “Base Cost” is always some multiple of the “Base 1 Cost.” The “Cost Multiple vs. Speed” is given across the bottom of most ship cost charts.

Players must be careful to know the difference between these similar terms because 1 term or the other is used to calculate the cost of a ship or its TA add-ons. There is a lot of difference between the 2 terms.

Deep Space Warp Ability

The chart on p.131 is a list of warships, some with warp drive and some without.

The CS Scout Cruiser and larger warships have unlimited warp drive. So can all merchant and auxiliary vessels. They can travel indefinitely in deep space.

The DD, GB, FR, SH and YA lack warp drive, so cannot warp out of the star at which they are built. Such ships are used for planetary defense, especially against a blockade, and to supplement a battle fleet if the star comes under dispute.

The GA Galleon can warp out of a friendly, enemy or neutral production center star with 4 or more factories and into deep space, but must warp back into any production center star with 4 or more factories the next year. Warping movements must be conducted within a Cycom. A GA is lost if it fails to return to a production center star the year after warping out. The GA is suited for regional defense. Don't ask why a neutral or enemy production center star would help a GA warp in and out; it's a game thing.

Family	Designation	Greater Warships <div>Name</div>	No. of Guns	Gun Range	Base Cost vs. Speed							Base 1 Cost				
					10	9	8	7	6	5	4					
Behemoths	M	Behemoth	40	40	4320	2880	2300	1800	1440	1224	1080	720				
	L	Leviathan	38	40	Some high-end ships are not allowed for arbitrary reasons				1388	1180	1040	694				
	T	Titan	36	40					1336	1136	1002	668				
	MO	Monster	34	40					1280	1598	960	640				
	GG	Gorgon	32	40					1220	1037	915	610				
	G	Giant	30	40					1156	982	867	578				
Royalty	SO	Sovereign	28	40			1708	1335	1068	908	800	534				
	NN	Double Dragon	26	40			1594	1245	996	846	747	498				
	KG	King Class DR	24	40			1472	1150	920	782	690	460				
	QU	Queen Class DR	23	40			1344	1050	840	714	630	420				
Flowers	P	Petunia	22	40	2280	1520	1216	950	760	646	570	380				
	TU	Tulip	21	40	2046	1364	1091	853	682	580	511	341				
	DA	Daffodil	20	40	1830	1220	976	762	610	519	458	305				
	BE	Begonia	19	40	1632	1088	870	680	544	462	408	272				
Battleships	Z	Super Dreadnought	18	40	1452	968	774	605	484	411	363	242				
	SL	Ship of the Line	17	40	1290	860	688	538	430	366	322	215				
	DR	Dreadnought	16	40	1146	764	611	477	382	325	287	191				
	BS	Super Battleship	15	40	1014	676	541	422	328	287	254	169				
	BB	Battleship	14	40	894	596	477	373	298	253	224	149				
Battle-Cruisers	DN	Dragon	13	40	786	524	419	328	Not allowed – would violate Jackie Fisher's concept of a battlecruiser			131				
	CH	Heavy Battlecruiser	12	40	690	460	368	288				115				
	CG	Galaxy Cruiser	11	40	600	400	320	250				100				
	CB	Battlecruiser	10	40	516	344	275	215				86				
Deep Space Warp Ability	Designation	Lesser Warships <div>Name</div>	No. of Guns	Gun Range	Base Cost vs. Speed							Base 1 Cost				
					10	9	8	7	6	5	4					
Un-limited	S	Star Cruiser	9	40	420	280	224	175	140			70				
	CA	Heavy Cruiser	8	40	360	240	192	150	120			60				
	CM	Moon Cruiser	7	40	270	180	144	113	90			45				
	CL	Light Cruiser	6	40	240	160	128	100	80			40				
	CS	Scout Cruiser	5	40	240	160	128	100	80	68	60	40				
No warp drive	DD	Destroyer	4	40	120	80	64				20					
	PG	Gunboat	3	40							40	32	16			
	FR	Frigate	6	20							156	104	83	65	52	26
	1 Year	GA	Galleon	5							20	180	120	96	75	60
No warp	SH	Schooner	4	20	96	64	51	Some low-end ships are not allowed for arbitrary reasons			16					
	YA	Yacht	3	20	60	40	32				10					
Cost Multiple vs. Speed					6	4	3.2	2.5	2	1.7	1.5	1				

The CB and larger are available with TAs 340.10 - 340.30. Speed 6 is tops at game-start (TAs 320-323). Short guns on FR, GA, SH, YA fire at double power (3 guns = 6 attack); defense is normal. Short guns can't be fired on overload.

Guns/Defense

Guns are anti-matter weapons that generate exploding energy balls in the vicinity of an enemy ship. The energy balls are hurled into another dimension by the “gun” and regenerated near the target after a momentary delay. The anti-matter energy ball explodes instantly upon regeneration in the real universe. These guns use the same energy generators used by the ship’s shields.

Defense is provided by energy shields that are projected around a ship. These energy shields use the same energy generators as the ship’s guns. These shields protect a ship against most types of weapons, but even a weak attack has potential for causing damage.

How To Use. Each ship according to the warships chart on p.131 or with the TA rules for certain types of ships carries a stated number of guns for its type. A CB, for example, has 10 guns. These guns are actually a measure of a ship’s energy generation capacity, which means that a 10-gun ship, for example could fire 6 guns and have 4 for defense. The same ship could fire 2 guns and have 8 for defense. A ship in battle always allots all its energy to guns and defense. Short guns (range 20) are fired independently from long guns (range 40) and do not contribute to defense.

There is no limit on the number of targets a ship can fire at other than the number of guns or targets available.

Gunfire may not travel through planets or moons. When a player is counting the squares from his ship to the enemy ship he must count along a straight line with no more than one 45° angle, or bend, in it. This may create blind spots behind planets, moons or asteroid torpedoes. A 90° bend or more or multiple bends are not allowed. Ships may fire through one another. That is, there is no such thing as obstruction by ships in the line of fire.

Gun Overload. A gun may be fired on overload so that it has the same power as 2 guns firing, but after the gun has been fired once on overload it is destroyed. Enemy fire destroys gun overload guns (again) on that turn before guns not placed on overload are destroyed. A ship may destroy its guns by overloading any time it pleases. The FR, GA, SH and YA (p.131) have short-range guns that always fire on permanent overload with no harmful effect. Note that TA-335 Double-Gun Warships (p.214) also carry short guns that fire on permanent overload without harm.

Against TA-377a, b, c Marks I, II, III Heliostatic Hellfire Machine (p.226) guns fired on overload count as 1 gun each. Thus, a CS that fires 5 guns on overload still counts as 5 guns. Same for a GA with short guns.

Added Defense for Jinking. A bonus of 1 defense factor will be added to a target for every 45° turn it makes on the battle board to a maximum of 4 per turn. Jinking may not more than double assigned defense.

Computing Range. Counting range along a diagonal consumes 2 range factors while horizontal/vertical range counting consumes 1 range factor, just as with warp and battle board ship movement.

Hits Table/Damage Table

The Hits Table (p.133) determines the number of hits on the target. Gun attack factors may or may not be totaled per target to form a single ratio. Torpedo attack factors are kept separate from guns. Consult the Damage Table (p.133) after the number of hits has been determined.

Hits Table

Lucky shot!

Decimal Ratio	Integer Ratio	6-Sided Die = # of Hits					
		1	2	3	4	5	6
1 - 6.00	1 : 6	6	0	0	0	0	0
1 - 5.00	1 : 5	0	0	0	0	0	1
1 - 4.00	1 : 4	0	0	0	0	0	1
1 - 3.50	2 : 7	0	0	0	0	0	1
1 - 3.00	1 : 3	0	0	0	0	0	1
1 - 2.50	2 : 5	0	0	0	0	0	1
1 - 2.33	3 : 7	0	0	0	0	1	1
1 - 2.00	1 : 2	0	0	0	0	1	1
1 - 1.75	4 : 7	0	0	0	0	1	2
1 - 1.67	3 : 5	0	0	0	0	1	2
1 - 1.50	2 : 3	0	0	0	0	1	2
1 - 1.40	5 : 7	0	0	0	1	1	2
1 - 1.33	3 : 4	0	0	0	1	2	2
1 - 1.25	4 : 5	0	0	0	1	2	2
1 - 1.20	5 : 6	0	0	0	1	2	3
1 - 1.17	6 : 7	0	0	0	1	2	3
1 - 1.00	1 : 1	0	0	1	2	2	3
1.17 - 1	7 : 6	0	0	1	2	3	3
1.20 - 1	6 : 5	0	0	1	2	3	3
1.25 - 1	5 : 4	0	0	1	2	3	4
1.33 - 1	4 : 3	0	0	2	3	3	4
1.40 - 1	7 : 5	0	1	2	3	4	4
1.50 - 1	3 : 2	0	1	2	3	4	4
1.67 - 1	5 : 3	0	1	3	4	4	5
1.75 - 1	7 : 4	0	2	3	4	5	5
2.00 - 1	2 : 1	0	2	4	5	5	5
2.33 - 1	7 : 3	1	3	5	6	6	6
2.50 - 1	5 : 2	1	4	6	7	7	6
3.00 - 1	3 : 1	2	5	7	8	8	7
3.50 - 1	7 : 2	3	6	8	10	10	8
4.00 - 1	4 : 1	4	7	10	13	13	10
5.00 - 1	5 : 1	5	8	13	17	17	13
6.00 - 1	6 : 1	6	10	17	22	22	17
7.00 - 1	7 : 1	7	13	22	X	X	22
8.00 - 1	8 : 1	8	17	X	X	X	X
9.00 - 1	9 : 1	10	22	X	X	X	X
10.0 - 1	10 : 1	13	X	4	X	X	X
11.0 - 1	11 : 1	17	X	X	5	X	X
12.0 - 1	12 : 1	22	X	X	X	6	X
13.0 - 1	13 : 1	X	X	X	X	X	Miss

Damage Table

Die	Damage
1	Gun
2	Gun
3	Hull
4	Hull
5	Engine & 1 TA *
6	Roll again:
	1 = 1 Gun
	2 = 2 Hull
	3 = 3 Engines
	4 = 2 Guns, 2 Hull
	5 = 2 TAs *
	6 = Roll again
	Roll again:
	1 = 2 Guns
	2 = 2 Hull
	3 = 2 Engines
	4 = 2 TAs *
	5 = Bridge; ship repeats last move.
	6 = Ship explodes!

A **short gun** is lost for each **long gun** lost. Applies to ships/OMF that mount both.

A **torpedo tube** is lost for each gun lost. **Torpilleur** ships lose 2 tubes per gun.

A ship has the same number of **hull** factors as it has guns.

Each **engine** loss reduces warp speed by that amount and reduces maneuverability. A ship with half or more of its engines lost cannot enter pre-warp or sub-warp or use Enhanced Maneuverability.

* Any **TA** can be destroyed except ship designations and ^{ss}, —, ^p, AT, AG, AS, AH, AA, etc., but always defender's choice.

Wretched excess!

Battle Record

Full Ship Designation + Notes

Full Ship Designation + Notes															Battle Number:									
Round	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15									
Attack																								
Defense																								
Guns Target																								
Torpedo Target																								
Torpedoes Remaining																								
Next Move																								
Guns and Torpedo Tubes (X)				40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22		
Hull Hits	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22		
				40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23			
Engines (X)	1	2	3	4	5	6	7	8	9	10														
TAs (X)																								

Ambush Drive, Speed 8, DR = 12-gun Dreadnought, hull number 53 with Armored Guns, Super Deflector, Mark III Torpedo Deflector, Mark III Torpedo Interceptor, Mark I Hallucination Projector and Mark VI Phytan Torpedoes.

Sample Battle Record

Record of jinking juice (JJ) usage

Battle No. 223

Error. This ship carries Mark VI Homing Torpedoes as indicated next to "Torpedo Target"

Ship fires 6 attack

Ship assigns 5 defense plus 2 for speed

Battle 223 Number:

Battle Record

Full Ship Designation & Notes <i>a 8/DR. 53 sd td³ ti³ hpa +++++</i>															Battle 223 Number:	
Round	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Attack				6	6	6	5									
Defense				6+2	6+2	4+2	5+2									
Guns Target				8/CB.7	8/CB.1	8/CB.1	6/Z.50									
Torpedo Target	<i>Homing</i>			CS.13	SH.17 CS.13	CB.1	6/Z.50 SH.17									
Torpedoes Remaining	12	12	12	11	8	7	5									
Next Move	8W	6W 2NW	8N	2NW 2W 4SW	8W	2NW 2N 4NW	8N									
Guns and Torpedo Tubes (X)													32	31	30	29
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hull Hits	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	4	1											17	18	19	20
Engines (X)	1	2	3	4	5	6	7	8	9	10			21	20	19	18
	5												22	21	20	19
TAs (X)	1	2	3	4	5	6	7	8	9	10			23	22	21	20
	4-SD	6-a	7-ti ³										24	23	22	21

1 Maneuvering Engine destroyed on Round 5

Super Deflector destroyed Round 4

Ambush Drive destroyed Round 6

Mark III Torpedo Interceptor is destroyed on Round 7

1 Gun, 1 torp tube and 1 hull destroyed Round 7

Delete excess entries before beginning a battle.

JJ
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Ship Mortality

Destruction. A ship is destroyed when all guns/defense or hull factors have been destroyed and the ship receives 1 more gun or hull hit. A ship employing no defense will be destroyed by 1 gun firing at it (don't use the hits chart). A ship is helpless while landed on a planet for repairs, upgrading or any other reason. Cargo is always destroyed with a ship.

Surrender. Merchant vessels or other ships that have no offensive weaponry remaining will automatically surrender to any enemy warship carrying 1 or more guns and of equal or superior speed that succeeds in closing within gun range 10. This applies only if the defenseless ship is unprotected on the battle board by any friendly ship able and willing to attack the enemy.

Self-destruction. A player cannot destroy one of his own ships intentionally while it has crew on board. There are two methods to circumvent this rule:

1. Removing crew. If a player succeeds in moving 1 of his own ships within 1 square of another of his ships for 1 full battle board turn, he will have succeeded in removing the crew if neither ship separates or employs any weapons/defense during that turn. The ships must travel at the same speed and on parallel courses. The ship removing the crew must have at least half the number of guns as the other or be half the cost or more. A suitable ship can remove crews off any number of ships. Vacated ship then self-destructs.

2. If a ship lands on the planet of one of his own colonized stars, the crew can be assumed to have disappeared into the jungle on the next battle board turn and the ship blown up. A ship must reduce speed to 1 to land on the planet of value.

Hulking. A ship becomes a hulk when it loses the exact number of hull factors it was built to have. A ship is destroyed if it takes 1 more hull hit. Example: A Star Cruiser (p.131) has 9 hull factors; 9 hull hits hulks it; 1 more destroys it. The hulked ship cannot alter speed or course and cannot use weaponry. A hulk can be destroyed by a friendly ship.

The hulk is a neural-electronic slag heap of closely associated semi-sentient ship parts floating around in space that can be towed away, analyzed and repaired by any empire. The hulk drifts into a geosynchronous orbit 52 east of the planet of value the same year a battle is concluded. It will remain there until it is salvaged or destroyed.

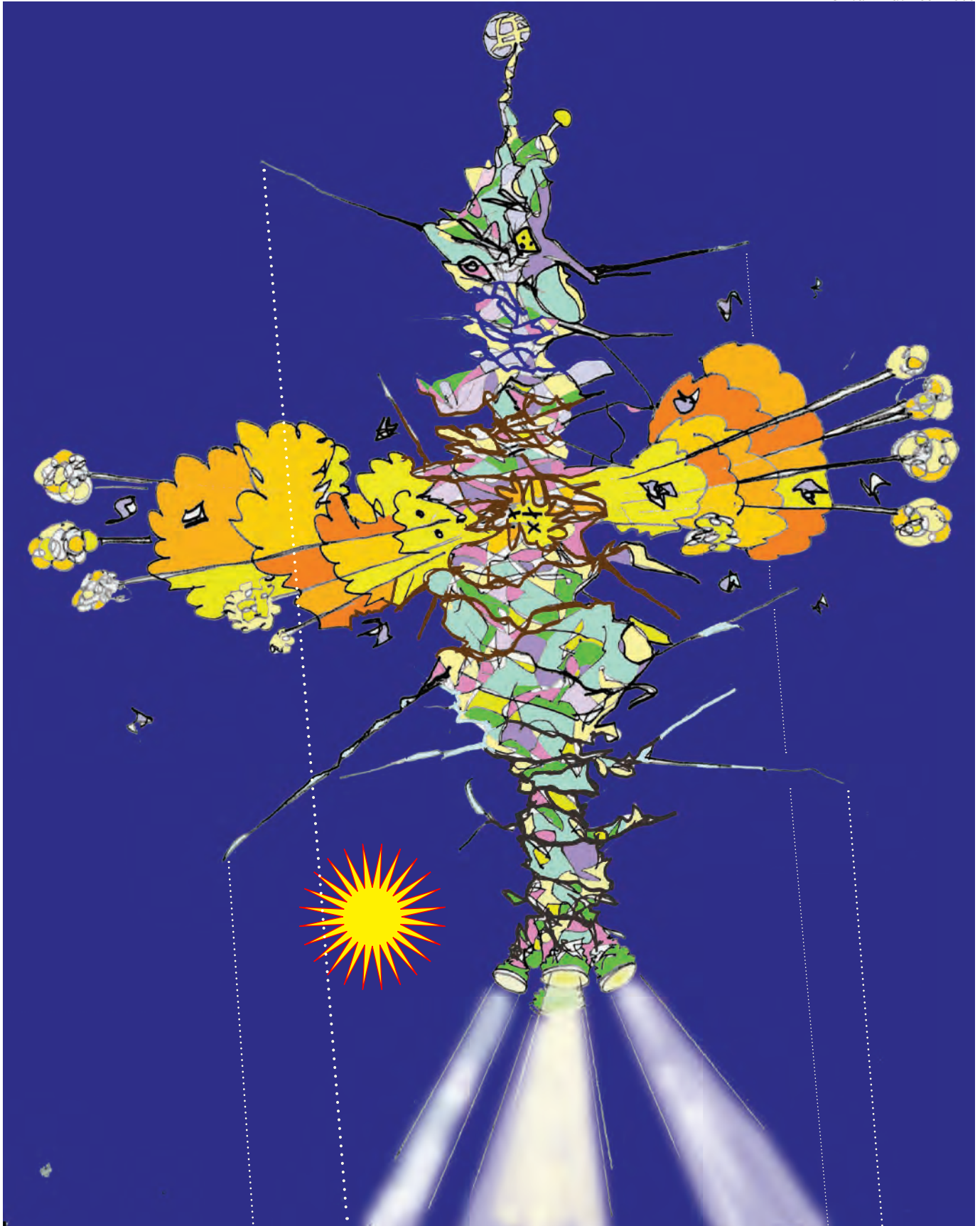
A ship with destroyed engines also will assume a geosynchronous orbit of 52 east of the planet of value. The ship becomes a hulk after the current Cycom.

Repairing a hulk costs 100% of the base 1 cost of the ship. Cost of repair must be paid from the empire's IMLO Bank account. The hulk can be repaired only at a home star, at a production center star or by a TA-270/271 Repair Ship (p.199), the latter normally in deep space. Repairs include all TAs on the ship, and include the restocking of expendable ordnance. Repairs require the ship to land on the planet of value (salvage tugs) and remain in a helpless status for 1 full year.

TAs the hulk has are captured if the ship is taken to the home star. Captured TAs become available the following Cycom. The exact mark of a captured TA can be used by the capturing empire, but later marks cannot be developed until missing earlier marks are developed.

Repairing battle damage. Any ship suffering battle damage, but not hulked, may be repaired at any production center star, home star or by a TA-270/271 Repair Ship (p.199). Repairs include free restocking of expendable ordnance. Repairs require the ship to land on the planet of value and remain in a helpless status for 1 full year. A Repair Ship normally conducts repairs in deep space. Repair costs are a percentage of the base 1 cost of the ship (right-hand column, p.131): 10% to repair all guns, 10% for all hull damage and 10% for *each* engine. Each TA is either 10% of base 1 or half full replacement cost, whichever is cheaper.

Defer cost to next Cycom for repairs conducted the same Cycom damage was taken.



The Rein-M'tuh telepath Lanakuli Loralí projects her mind and body to another ship a split second before her 10-speed Petunia is destroyed by a Xenophobiac after her ship warped into Planet 4 of Delta Delta Ophiuchus.

Chapter 8



Sequence of Events

&

Victory Conditions



Victory Conditions

Condition One. Player succeeds in establishing a production center of any type in each map section. At that point, the player announces to all other players that this has been accomplished. The player wins if he still holds a production center in each map section for 3 consecutive Cycoms following the announcement.

Condition Two. Loss of all production center stars except the home star for 3 consecutive Cycoms. All remaining ships gather into a single fleet and flee off the map to an unexplored part of the galaxy. Upon arrival you will be required to start another game.

Condition Three. Any player who doubles another empire's MT income for 1 Cycom eliminates the weaker player – does not apply until second Katun. Income from NGC-700,000 (long map, p.30-65) does not count in this calculation. The weaker player's ships are taken over by IMLO, p.144. The eliminated empire's stars go neutral without Factories, Shipyards or GU. Moon Fortresses and Orbital Moon Fortresses drift into deep space and are lost. It is strongly advised that players form temporary alliances to attack empires that get dangerously ahead of other players. Conversely, it may be wise to form alliances to eliminate weaker players.

Condition Four. A king gets bored and refuses to play this silly game any more. All ships and other assets are taken over by IMLO. All stars go neutral without factories, etc. The bored king is not allowed to play another game until brain and personality transplants become a routine medical procedure for the mentally defective.

Condition Five. An empire develops every TA in the rule book. The king claims a moral victory and establishes claim to the entire galaxy. All other empires send the victor 1,000 MT in protection money at the start of the next Cycom. The fighting and related alliances continue unchanged.

Condition Seven. Last 2 players in the game agree to a permanent truce, thus ending the game. The 2 players involved will be declared co-winners . . . or co-losers.

Sequence of Events

Income

1. MT produced by empire's stars sent to IMLO Bank at end of Cycom
2. TA-1 IMLO loans granted and placed in IMLO Bank
3. TA-310 Omnificent War Leader (OWL) rewards placed in IMLO Bank
4. TAs 70-74 Junking Center built after production center star built or captured
5. TA-70-74 Junking Center junking and MT placed in IMLO Bank
6. Total MT available for current Cycom calculated

Expenditures

7. IMLO payments made
8. All construction begins
 - a. Add, subtract or upgrade TAs on ships and fortresses
9. Warship repairs begin; warship repairs begun previous year completed
10. Merchants loaded

Warp Movement Events

11. Warp movement out, including TA-50 Questor Probe
12. Warp movement in
13. Players exchange contact information after studying enemy warp ripple reports
14. Pirates attack

Battle Board Events

15. Ships situated on battle board of appropriate solar system
16. Ships move; ship-to-ship cargo transfers; GU landed if no battle expected
17. Collisions determined, victims vaporized
18. TA-490 series of Asteroid Torpedoes fired and emplaced
19. TA-280 Q Ship fires weapons
20. All other weapons fire and explode
21.
 - a. TA-700 series of Hallucination Projector effectiveness determined
 - b. TA-380 series of Range Finder and TA-384 series of Range Loser effects determined
 - c. TA-120-122 Torpedo Deflector, TA-130-132 Torpedo Interceptor, TA-140 Torpedo Deflector/Interceptor and TA-150 Universal Deflector effectiveness determined
 - d. Gun damage calculated
 - e. Torpedo damage calculated
 - f. Any other damage calculated
22. TA-390 series of Tractor Beams record opponent's next battle board move
23. Players record next move for all ships on battle board
24. TA-820 Rein-M'tuh Telepath examines next move of all enemy ships
25. Hellfire placed by TA-377a, b, c Marks I, II, III Heliostatic Hellfire Machine
26. Ships move (same as entry 16)
27. Repeat 16 through 25 until battle concluded

Goodie Units

26. GU landed after hostile activities are complete

Victory Conditions

27. Victory conditions checked if at end of Cycom

Chapter 9



Introduction to Technological Advancements



Technological Advancement

The concept of a technological advancement (TA) allows a player to purchase weaponry and economic development capabilities not included as a basic part of the game. The TAs are purchased for a set cost. Development time is simulated by 2 requirements:

1. A TA is not available until the cycle of moves (Cycom) after it is purchased.
2. All players may develop 2 TAs per Cycom. TA-66 Accelerated Research, p.158, allows for a third TA to be developed in a single Cycom.

The cost of purchasing a TA must be paid by an empire's IMLO Bank account. The weapon or capability purchased may be built at any production center star.

TAs must be purchased in order, in that a Mark II weapon, for example, cannot be purchased before the Mark I has been purchased.

If a ship carrying a TA is captured by the enemy, the enemy may begin production of that TA the Cycom after the captured ship is taken to the home star. The captured TA is available to the new owner whether or not earlier marks of that TA have been developed. The details of a TA captured at a fortress must be loaded on a merchant (1-GU capacity required) and taken to the home star. A captured TA may be mounted on another ship of suitable size and thus transported to the home star; production center or RS, p.199, required.

TA visibility. TAs on a ship are not visible to the enemy, except as they become apparent during battle. Sometimes TAs must be revealed at the start of a battle just to keep matters simple. The mark of a TA is revealed for damage calculations.

TA Development Limits

Number of RUs	Number of TAs that can be developed per Cycom
2	2 – Cost not to exceed 100 MT
3	2 – Cost not to exceed 150 MT
4	2 – Cost not to exceed 200 MT
5*	3 – Cost not to exceed 250 MT
6*	3 – Cost not to exceed 300 MT

* See TA-1 Research University (RU) on p.1 for details. Also refer to cultural exceptions in the Supplementary Manual of Rules. Some cultures don't use RUs.

Upgrading TAs

Some TAs must be entirely replaced to be upgraded to a higher mark, but most upgrading is done with a visit to a production center star. A replaced TA can be junked or sold (TA-70 series of Junking Center or TA-13 Osama's Curio Shoppe).

A TA cannot be stored or transported but sometimes a TA weapon can be moved to another ship or fortress.

It is possible to develop a TA and simultaneously install it on a ship under construction.

Maximum Number of TAs Allowed on a Ship

Warships 14 guns and larger may carry as many as 12 TAs. Warships with 8 to 13 guns may not carry more than 8 TAs, except the 5-gun CS also can carry 8 TAs. Warships with 3 to 7 guns are limited to 4 TAs. Unarmed ships may carry any number of TAs appropriate to the ship. The 1- and 2-gun LS and HS are discussed with that TA (p.223).

TAs that pertain to a specialized hull type, such as a Solar System Defense Ship, Q Ship, Armed Merchant or Plasma Gun Warship, etc., count as a TA.

High-mark TAs that combine the capabilities of multiple earlier TAs count as only 1 TA.

Enhancements to existing TAs, such as Torpilleur Capability or Torpedo Gatling, etc., do count as an extra TA. Each type of Armor counts as a separate TA, but not on CC types..

Chapter 10



Economic Development



TA-1 Intergalactic Mafia Loansharking Organization

Descriptive: The criminal underground has its dirty fingers into everything, especially in the lives of galactic citizens in every empire in the universe. Intergalactic thuggery is involved in banking (see Megatons (MT), p.81), loansharking (TA-1 IMLO, p.144), espionage (TA-2 Intergalactic Mafia Espionage Racketeers (IMER), p.145) and ship rental (TA-300 Intergalactic Mafia Rental Cartel (IMReC), p.207). The association of criminal cartels has not entered the drug trade (TA-210 series of Hyggyns Mining Ship, p.175).

Organized criminal behavior and a ritualized bribery system are largely responsible for the governmental waste and corruption that will plague your empire throughout the game (see TA-11 Governmental Efficiency, p.147). Refusing membership is not an option.

IMLO also is a strong-arm collection agency and is the “enforcer” of the galaxy used by players to collect bad debts, resolve player accounting errors in an instant and through intimidation cause players to remain in 100% compliance with the rules at all times.

Designation: IMLO

Prerequisite: None

Development Cost: 16 MT (Mandatory membership during first Katun)

Item Cost: n/a

When inoperable: Never. Ships of the IMLO enforcement fleet are equipped to self-destruct and will be replaced as needed.

Narrative: IMLO Bank loans MT to the downtrodden at exorbitant interest rates.

Borrowing. A player lists the MT amount borrowed as income at the beginning of a Cycom. The loan must be taken through IMLO Bank and may not exceed 10 times the player's yearly income at the time the loan is taken nor may it be less than 100 MT.

Repayment. Repayment *must* be made in MT the first year of each Cycom. The first payment is due the first Cycom after the loan is taken. Each payment *must* be equal to 20% of the original balance. There will be 6 payments (1 each Cycom), although the loan may be paid off ahead of time if a lump sum payment is made for the remaining balance.

Consolidation. Any previous balance still due on a loan when a subsequent loan is taken must be consolidated into the new loan. Thus, there will always be only 1 loan payment to make. Consolidation is possible only if 2 or more payments already have been made.

Refinancing. A loan can be refinanced so as to lower the weekly payments. This can be done only if payments have already been made for 2 or more Cycoms. Each of the 6 payments of the refinanced loan must be equal to 20% of the original balance.

Enforcement. IMLO has a large quantity of warships equipped with a range of TA weaponry. These ships are used to “collect” past due payments and to “correct” rules infractions. Players utilize these ships as needed.

TA-2 Intergalactic Mafia Espionage Racketeers

Descriptive: IMER is an intelligence-gathering organization that has no respect for any life form, especially humanity. There is no secret it does not know and all are for sale.

Designation: IMER

Prerequisite: TA-1 Intergalactic Mafia Loansharking Organization (IMLO)

Development Cost: 16 MT

Item Cost: n/a

When inoperable: Never.

Narrative: IMER will agree to sell 1 secret per cycom per empire. Information is requested along with the reporting of warp ripples. Information is provided by your victim along with his warp ripple report. Information is exchanged directly between players. IMER must be paid that same Cycom.

300 MT – Location of 1 Plague Planet (specify opponent)

300 MT – Location of all stars in 1 Amphibian Empire (specify opponent)

300 MT – List of TAs developed by (specify opponent)

300 MT – List of all ships (speed and size only) in navy of (specify opponent)

200 MT – Location of all stars in 1 Pirate Empire (specify opponent)

200 MT – Locations of all Xenophobiacs (specify opponent)

100 MT – List of all stars in 1 Dead Empire (specify opponent)

100 MT – Stolen scientific secrets allow you to develop 2 extra TAs next Cycom at normal cost; may be used only once per game per empire

100 MT – List of stars colonized as Under-the-Rock Pariah culture (specify opponent)

100 MT – List of all stars colonized with an OH, OV, OC or OM (specify opponent)

100 MT – List of all 1-MT stars colonized by (specify opponent)

100 MT – Get complete construction and installations information about enemy production center star, including TAs used (specify star and date)

100 MT – List of all TAs mounted on largest ship in space navy of (specify opponent)

20 MT – Largest ship (speed and size only) in space navy of (specify opponent)

TA-6 Federation of Union Labor (FOUL)

Descriptive: Human nature is to strive to be rich and powerful. That breeds cruelty and corruption. Labor Unions allow the common man to fight back. All clones, slaves, warriors and commoners belong to the Federation of Union Labor, which is yet another tentacle of TA-1 IMLO. Royalty is exempt.

Designation: FOUL

Prerequisite: None. Can be developed only once per empire in a game. Cannot be developed if the empire has destroyed 1 or more FY with gunfire.

Development Cost: 4 MT

Item Cost: None.

When inoperable: Never.

Narrative: FOUL reduces the cost of Factories (FY) (p.82) from 16 MT to 10 MT. If an empire chooses to destroy 1 or more FY with gunfire (see p.82) at a production center star, FOUL will view the destruction as a violation of its union contract. The penalty for running afoul of FOUL is that the cost will rise permanently to 24 MT per FY for that empire.

TA-7 Slick Willie, Intergalactic Labor Legate (SWILL)

Descriptive: Slick Willie smooths out labor relations with TA-6 FOUL after an empire has destroyed 1 or more enemy Factories (FY). A corrupt fellow, he's on the take, which is why he costs so much to develop. It's the bribes, stupid!

Designation: SWILL

Prerequisite: TA-6 Federation of Union Labor (FOUL). Additionally, the empire must have destroyed 1 or more FY with gunfire.

Development Cost: 96 MT

Item Cost: None.

When inoperable: After another enemy Factory is destroyed.

Narrative: SWILL returns the cost of Factories (FY) (p.82) to the normal 16 MT after an empire has committed the nearly unforgivable sin of destroying 1 or more FY with gunfire. Development of this TA forbids redevelopment of TA-6 FOUL.

If an empire destroys 1 or more FY with gunfire after development of this TA, the empire's SWILL will quit in a huff and last be seen retired to the Riviera on NGC-700,000. That act will return the cost of the empire's FY to 24 MT.

TA-10 IMLO Casino

Descriptive: The Intergalactic Mafia Loansharking Organization (TA-1) provides a palatial gambling house at its headquarters. It has become a popular hangout for the dissolute emperors of failed empires.

Designation: IMLOC

Prerequisite: TA-1 Intergalactic Mafia Loansharking Organization, p.144

Development Cost: 4 MT

Item Cost: 20 MT “lodging tax” for each gamble. A player may gamble once per Cycom.

When inoperable: Never.

Narrative: A player may gamble a minimum of 500 MT or a maximum of 8000 MT per Cycom. A player makes his gamble before starting work on the next Cycom. A gambling loss must be paid from an empire’s balance at IMLO Bank, by selling or junking assets or by floating a loan with TA-1 IMLO, p.144. Winnings are added to an empire’s bank account.

The procedure to gamble is:

1. Current Cycom’s moves are thoroughly adjudicated and all issues resolved.
2. Prior to starting work on the next Cycom, player places his bet.
3. Bettor (Player 1) tells Player 2 the size of his bet and whether he is betting heads or tails on a coin toss. A die roll of even or odd also works.
4. Player 2 contacts Player 3 by phone, fax or e-mail to make the coin toss.
5. Player 3 reports coin toss to Player 2 who then notifies Player 1 of his win or loss.

TA-11 Governmental Efficiency

Descriptive: Homo Superior is an improved Homo Sapiens. They are smarter, larger, more handsome, ovoviviparous, have prehensile toes and tail, and have much improved internal organs of greater capacity. The females are male-fantasy spectacular. The fecund lot of them are immortal, although boredom eventually returns mortality to them all. Another failing is governmental decadence, for which Homo Superior has developed a pricey palliative called efficiency.

Designation: None

Prerequisite: None.

Development Cost: 132 MT. Must be developed each Katun, except the first, to prevent inefficiency setting in on the following Katun (Calendar, p.81). If a player doesn’t use this TA your empire eventually will die.

Item Cost: None

When inoperable: Never.

Narrative: Criminal organizations, corrupt politicians and human failings cause governmental organizations to decay and lose efficiency as they age. The Governmental Efficiency TA is used to prevent an empire’s MT production from being reduced by 10% during the second Katun and a general collapse of order and dissolution of empire in the third Katun. Efficiency is restored the Cycom following development of this TA.

A player has the option of operating his empire at a 10% loss or of allowing his empire to collapse. An empire collapse results in all that player’s ships vanishing from the playing map and all that empire’s stars going neutral with no factories (FY, p.82). His hazards remain, but are revealed to all players.

It is advised that players remind each other periodically during the course of the game that this TA should be developed each Katun, usually during Cycoms 16, 32, 48, 64, etc.

TA-13 Osama's Curio Shoppe

Descriptive: Osama the Swine, a sophisticated man of extravagant taste, was named after a famous terrorist of ancient times. He runs the Intergalactic Mafia Loansharking Organization's seedy pawn shop, deep space chop shop and illegal auction house patronized by the many strange creatures that inhabit the galaxy. Osama purchases used or worn out warships, auxiliary ships and merchants at distress prices. The ships are stripped of TAs, reconditioned to the extent that they can leave Osama's orbital parking lot under their own power and are resold on the open market.

Designation: None

Development Cost: 4 MT (membership fee counts as development of a TA)

Prerequisite: None

Item Cost: None

When inoperable: Not allowed.

Narrative: Players can sell ships they no longer want to Osama's Curio Shoppe for 70% of their full retail value, which includes TAs carried. Do not use Mass Production cost reduction calculations when computing the 70% return. Ships to be sold must be at a friendly production center star.

Osama's Curio Shoppe takes these distressed properties and resells them for a huge profit in another part of the galaxy that is not accessible to the contentious players in this game.

The proceeds from the sale of an asset are immediate; e.g., if a ship is sold on year 3 of a Cycom, the money is available on year 3, but not on year 1 or 2.

TA-16 Blockade

Descriptive: A successful blockade reduces a fortress-fortified production center star without resorting to a frontal assault. A change in the star's loyalty and its assets follows.

Designation: bk as in 10///S.33bk|f⁴|sd|jd⁶, 8//DA.117hpg|sd|rf³|rl³|bk|f⁴, etc.

Prerequisite: Mark III of any torpedo or Meandering Medusa

TA-1140 Mark IV Fleet Formation Keeper, p.449

Development Cost: 128 MT (includes cost of imaginary "Stinger" minifighters)

Item Cost: 50 MT. The 2 ships must have a bk module and a Mark IV or greater Fleet Formation Keeper. The 2 warships must have 9 or more long guns and be of speed 8 or faster. Any number of other ships can accompany and be positioned by the 2 bk warships.

When inoperable: Damage Table, p.133. A blockade ends when both bk ships lose 1 or more engines, lose 1 or both f⁴ or higher, lose 1 or both bk modules, or either bk ship is destroyed or forced to warp out. A blockade resets to Cycom 1 if the defender warps in a ship with 4 GU and lands on the planet of value for 1 battle board turn. The 4 GU are eaten.

Narrative: A blockade may be established against a production center star of any type protected by 1 or more fortresses of any type. An unprotected star cannot be blockaded. A TA-1260 Major Base of Operations and a TA-1360 Super Base of Operations cannot be blockaded. The ships required to conduct a blockade are described under Item Cost, above.

Blockade ships are equipped with "Stinger" minifighters that prevent interplanetary shuttle craft from servicing any type of Moon Fortress. Stingers and shuttle craft do not appear on the battle board; they are strictly an imaginary construct.

Results of an Effective Blockade:		
SF.160, 120, 80, IF.10:	Cycoms 1-4 – Fortresses active and loyal Cycom 5 – Fortresses dormant; loyalty follows	Dormant assets can't be attacked or else they will reactivate on an emergency basis for self-defense.
MF.32, 24, 16, 8:	Cycoms 1-3 – Fortresses active and loyal Cycom 4 – Fortresses dormant; loyalty follows GU	
OMF.16:	Cycoms 1-2 – OMF active and loyal Cycom 3 – OMF dormant; loyalty follows GU	
PF.10, PF.8, H, HH, HHH:	Cycom 1 – Fortresses and Hellfire Machines active and loyal Cycom 2 – Fortresses & Hellfire dormant; loyalty follows GU	
GU:	Cycoms 1-4 – GU remains loyal as long as there are defenders Cycom ? – GU loyalty shifts to blockader when all defenses go dormant, are run off or are destroyed. Fortresses, FY, SY and H/HH/HHH activate for new owner when GU loyalty shifts	
FY, SY:	Cycom 1 – Finish previously started construction; go dormant Cycoms 1-4 – FY, SY dormant; loyalty follows GU	
SS Def. Ships:	Cycoms 1-5 – Solar System Defense Ships <i>never</i> defect, but if GU shifts loyalty, the Solar System Defense Ships become recoverable hulks at the end of the year	
Defending Ships With Warp Drive	Any Cycom – Defending ships with warp drive are unaffected by a GU's loyalty shift; they can warp out, watch or attack	

Income from a blockaded star is lost, starting with Cycom 1. A star may not junk or sell anything or begin construction of anything from the moment of arrival of the blockader or during the course of a blockade. Construction already started is completed on schedule.

A blockade ship or fleet is stationed on the battle board at range 48-56 from any defenses. The 2 blockade ships use their powerful f⁴ or greater (p.449) to position themselves and all incoming ships in directions and distances (48-56) selected by the 2 blockade ships. Enemy must have equal or higher mark of TA-1140 series of Fleet Formation Keeper, p.449, to defeat blockader's warp-in placements. TAs 1167-1169 Padlock, p.449, are effective.

TA-20 Slavery

Descriptive: Unscrupulous rulers of interstellar empires have been known to resort to slavery to increase industrial capacity. The victims are frequently alien beings that die in droves. Slavery does nothing for an empire's net income, but does allow for more war materiel to be produced at frontier production centers.

Number of Factories	Star's MT Output	Max. MT/Cycom Industrial Capacity
2	2-MT/year	16 MT
4	4	32 MT
6	6	64 MT
8	8	128 MT
10	10	256 MT
12	10	512 MT
14	10	1000 MT
16	10	2000 MT
18	10	4000 MT
20	10	8000 MT

Designation: Slave as in Y-12-G.Slave, F-8-J.Slave, A-10-M.Slave, etc., the star's coordinates are given, followed by .Slave.

Prerequisite: None

Development Cost: 4 MT

Item Cost: 16 MT per Factory (FY, p.82). Must be at Main Sequence star production center. Slavery is not allowed at any other type of star's production center.

When inoperable: Factory numbers exceeding 10 are destroyed by rebellious slaves when the production center's defending GU is destroyed and the star goes neutral.

Narrative: Slavery allows the cruel rulers of your empire to upgrade the industrial capacity of a Main Sequence star to equal that of a home star. This does *not* increase the MT income produced at the star, which remains at 10-MT/year.

The chart from p.82 is shown above. The chart indicates that the maximum number of FY at a Main Sequence star is 10 and that the star's industrial capacity is 256 MT/Cycom. Slavery allows a Main Sequence star to have as many as 20 FY with an industrial capacity of 8000 MT, but does not increase the star's MT output beyond 10-MT/year.

Slaves are not known for loyalty to their oppressors, so when the Main Sequence star's 1 GU is destroyed by enemy action, the slaves will rise up and destroy all factories at the star that exceed 10. The first 10 FY are unharmed, just as FY in all other situations.

TA-22 Under-the-Rock Pariah Cultures

Descriptive: Extreme social beliefs create pariah cultures noted for their paranoia and hermetic behavior. This allows more traditional cultures to expel their extremists to the nether regions of deep space. The frightening collection of lunatics, fanatics, megalomaniacs, crackpots, madmen, screwballs, psychotics, psychopaths, zealots, liberal economists, conservative revisionists, Trotskyites and half-wit dingbats are dumped on

Number of UFY (32 MT ea.)	URP Star's MT/year	Max. MT/Cycom Industrial Capacity
4	4	50 MT
6	6	100 MT
8	8	200 MT
10	10	400 MT
12	12	800 MT
14	14	1600 MT
16 (Maximum)	16	3200 MT

a main sequence star's planet of value and proceed to burrow for miles under a vast mountain range where they install high-output, clone-operated factories.

Designation: URP as in 943-URP.16., 653-URP.4, A-10-M-URP.10, etc., the star's number (or coordinates) are given, followed by -URP and the total number of UFY at the star. Underground Factories are called UFYs.

Prerequisite: Only on a Main Sequence star with number ending in 0 (long map) or a main sequence star located on the 20 row on the alternate map starting on p.329.

Development Cost: 32 MT

Item Cost: 32 MT per Underground Factory (UFY). TA-6 FOUL and TA-7 SWILL, both on p.146, do not apply. Must be at Main Sequence star; no more than 1 URP per empire per map section, unless by capture. Pariah cultures are not allowed at any other type of star.

When inoperable: UFY and URP GUs cannot be destroyed. Defending GU can only be overwhelmed by superior numbers of enemy GU.

Narrative: URP production center stars are created by hauling 1 or more GU and 4 or more UFYs to a main sequence star located as described in the prerequisite, above. An URP star begins production the Cycom after installation. Installing GU and UFY takes no time. UFY for an URP star require the same amount of cargo space as a GU or FY. TAs 33-36 Orbital Hamlet, Village, City, Metropolis, p.153, must be gotten rid of upon establishment of an URP Culture.

An already functioning production center star can convert itself into an URP Culture by building its own UFYs. Existing FYs are sold or junked.

The star is defended by Goodie Units (GU, p.81), which can rise to any number. The only way to reduce enemy GU at an URP star is to drop your own GU on the star to neutralize them on a 1:1 basis. If an empire drops GU on a star exceeding the number defending, the star switches allegiance and production to the victor beginning the Cycom after capture.

Pariah cultures do not allow ships with any armament to warp into their star. Only unarmed merchant ships, which excludes TA-280 Q Ships (p.200) and TA-281 Armed Merchant Ships (p.201), may visit the star. TA-297 0-Gun Spy (p.295) may be stationed at the star, but not the 1- or 2-gun Spy. TAs 50-52 Questor Probes (p.156-157) may investigate an URP star. Opposing merchants ignore each other. The penalty for intentionally sending an armed ship into an URP star is the wrath of IMLO (p.144). An armed ship is not penalized for discovering an enemy URP star, but the ship must instantly warp out without firing a shot. **Exception:** Friendly ships may visit an URP star for upgrade purposes, which must be completed the year after arrival. The ships must then warp out. IMLO will enforce the peace.

The number of UFY and defending GU are visible to any ship, QP or Spy. Construction is also visible and reported to an observer at the end of a Cycom. Construction of ships requires a TA-1030 series of Shipyard, p.435. Completed warhips must war out immediately.

TA-30 Dead Dwarf Telescope

Descriptive: The Dead Dwarf Telescope allows an empire to detect the location of Dead Dwarf stars wandering about the galaxy.

Designation: None

Development Cost: 8 MT

Prerequisite: None.

Item Cost: 0 MT.

When inoperable: Never. It cannot be destroyed.

Narrative: Allows an empire to locate and visit Dead Dwarf stars. Dead Dwarfs (p.69) are placed on the map for all to see, but cannot be visited until this TA has been developed. There is no Dead Dwarf Telescope facility, just the capability.

TA-31 Dead Dwarf Production Center

Descriptive: The Dwarf Star Production Center allows an empire to establish a production center on the pleasantly warm surface of a Dead Dwarf Star (p.69), which is otherwise worthless.

Designation: dd

Development Cost: 132 MT

Prerequisite: TA-30 Dead Dwarf Telescope

Item Cost: No extra cost beyond that of the 1 GU (p.81) and 2 FY (p.82) needed to create a Dead Dwarf production center. GU and FY can be installed simultaneously.

When inoperable: Never

Narrative: Select star names for production center stars from list, most of which are

Ambystoma	Aridis
Alytes	Annea
Amphiuma	Astratus
Agalychinus	Anteus
Alvarius	Aevis
Acris	Atobius
Aneides	Atra
Astrella	Aviceps
Anondrata	Arborea
Anomosella	Arleata
Annulatum	Akatina
Arthroleptella	Dendro
Arthroleptis	Diaglena
Astylosternus	Dorsata
Astylomnesii	Ensatina
Arabegora	Ocularis
Adenella	Oedopina
Ala Eo	Opalina
Anta Ubi	Orneata
Aro Ata	Proteus
Atra Mandra	Rugiceps
Aposterus	Sirea
Achinata	Spinosa
Aradoxa	Venulosa
Adatyla	Vivipara

TAs 33-36 Orbital Hamlet, Village, City, Metropolis

Descriptive: Most Main Sequence stars offer poor habitability for your type of creature, which limits rampant development of the hapless planet of value to a mere 1 MT/year. The solution is to build orbital cities free of the noxious planetary atmosphere. Orbital industrial operations allow mining activities that are highly destructive to the indigenous environment.

Designation: OH, OV, OC or OM as in 943-OV, 653-OC, A-10-M-OH, etc., the star's number (or coordinates) are given, followed by -OH, -OV, -OC or -OM.

Prerequisite: TA-394 Enhanced Maneuverability Capability, p.232.

Development Cost:

TA-33 OH: 64 MT	Must be developed in sequence.
TA-34 OV: 32 MT	
TA-35 OC: 16 MT	
TA-36 OM: 8 MT	

Item Cost: 70/90/110/130 MT per OH/OV/OC/OM. Must be built at a production center star, loaded on 1 merchant and dropped off at a colonized 1-MT Main Sequence star. Construction requires 1 Cycom to build, just like a ship. No time is required to install; drop it off just like a GU. It does not carry TAs.

When inoperable: The OH/OV/OC/OM is neutralized when the GU on the planet of value is destroyed by any 5-gun ship or larger firing 5 or more guns simultaneously from range 10 or less at the planet of value. The OH/OV/OC/OM is taken over by an attacker when the planet of value's GU is replaced by a new owner's GU. The OH/OV/OC/OM has no guns and can be destroyed by 5 or more guns fired at it from range 10 or less. A single hit from any mark of Unguided, Homing, Toss, Phyton, Gravity Bomb or Meandering Medusa will destroy an OH/OV/OC/OM. The OH/OV/OC/OM cannot be attacked until all defending ships, OMFs and GU have been destroyed. An attacking player must pay TA-1 IMLO item cost of each OH/OV/OC/OM destroyed on the Cycom following destruction. TA-310 OWL, p.208, gives rewards for neutralization or capture, but not for destruction.

Narrative: An OH/OV/OC/OM begins producing MT the Cycom after installation. It stops producing MT the Cycom after the 1 GU on the planet of value is destroyed. The colonized Main Sequence star, which has been producing 1 MT/year, ends production when the OH/OV/OC/OM begins production. GU/OH installation can be simultaneous.

Item	Item Cost	Guns /TAs	MT/Year Output	MT/Cycom Output	Industrial Capacity	Capacity Required to Carry*
TA-33 Orbital Hamlet	70	0	3	12	0	5 GU
TA-34 Orbital Village	90	0	4	16	0	8 GU
TA-35 Orbital City	110	0	5	20	0	12 GU
TA-36 Orbital Metropolis	130	0	6	24	0	16 GU

*Transportation of an OH/OV/OC/OM cannot be divided between 2 merchants.
A large merchant may carry a mixed cargo.

The location on the battle board of an installed OH/OV/OC/OM is range 3 east of the planet of value. Only 1 OH/OV/OC/OM may be at a colonized Main Sequence Star.

TA-421 Suicide Moon Fortress (p.240) can be sited as an OMF to protect an OH/OV/OC/OM. The OMF must be destroyed before the OH/OV/OC/OM or star's GU can be attacked. Friendly ships can be placed on ambush (TAs 660a-600zz Ambush Drives, p.306).

An OH/OV/OC/OM cannot be relocated, junked or disbanded.

TA-40 Navigational Beacons

Descriptive: A Navigational Beacon is a warp drive amplifier and navigational aid. Navigational Beacons allow friendly fleets to double the speed of their warp movements to a maximum of 12.

Designation: NB

Prerequisite: None

Development Cost: 32 MT

Item Cost: 8 MT each. No time required to build or install.

When inoperable: Never.

Narrative: Fleets must warp from one NB to the next. All ships warping from 1 NB to another will increase their speed to a maximum of double their normal warp speed, but never exceeding warp speed 12. When using NBs a ship must always begin and end each year's *long-distance* move at an NB. A fleet need not begin at the end of a string of NBs.

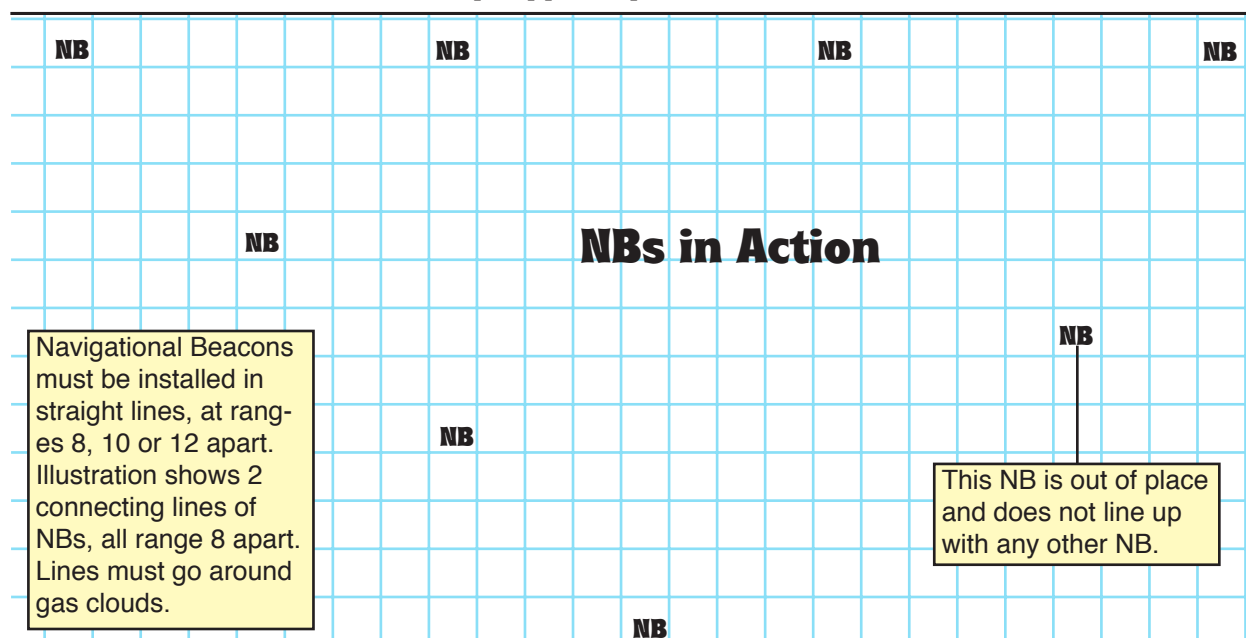
Navigational Beacons are placed in straight lines across a map and always in deep space squares. NBs may not be installed at a star or White Hole, used to leap across a gas cloud, through a gas cloud tunnel or to get to a parallel universe. The lines may be either vertical/horizontal or on a diagonal. Straight lines may connect to other straight lines, but the connecting beacons must line up.

NBs must be installed at range 8, 10 or 12 apart on the star chart. A line of NBs that are range 8 apart will allow a 4-speed ship to warp along at speed 8. A line of NBs that are range 12 apart will allow a 6-speed ship to warp at speed 12. Other speeds of ships may also warp at speeds 8, 10 or 12 along a line of NBs. Warp speed can never exceed 12.

Each NB requires the cargo carrying space equivalent to 1 GU or 1 FY.

Pirates and Amphibians will not harm NBs or the ships using them.

Installed Navigational Beacons may be picked up, moved to another location and junked or reinstalled. No time is required for picking up or installation. An NB is available for use the year after installation. Only the player installing the NBs knows of their location and is able to use them. There is no Warp Ripple Report or otherwise of NB installation or use.





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“The Ying Yang Tree II”
Originally done in Oil on Canvas

TA-50 Questor Probe and Plague Questor

Descriptive: An unmanned spy robot with warp drive camouflaged as a small asteroid. A specially-equipped QP provides cure information about a Plague Planet's plague.

Designation: QP or PQ

Prerequisite: None

Development Cost: 32 MT (earns both the QP and PQ capability).

Item Cost: 4 MT for each QP and 400 MT for PQ. The high cost of the PQ includes the medical research effort after plague is identified. 4 QP per GU or 1 PQ per 8 GU capacity.

When inoperable: At the end of the Cycom.

Narrative: The Questor Probe is carried by any merchant ship. A merchant ship approaches to 1 square of the target star to launch the QP. The merchant launches the QP at the start of the year simultaneous with the ship's warp out. The QP arrives at the start of the following year. The QP consumes warp juice just as would a ship and makes a warp ripple report as a QP upon arrival and each year thereafter until it dies. The QP can enter any type of star except a multiple star (binary through sextuple).

The QP survives at the target star until the end of the Cycom in which it arrives. The parent ship can depart the year after launching the QP.

The QP reports enemy forces present to its owner just as if a ship was at the star. It also warns of a Plague Planet (you don't catch the disease if you stay away), Xenophobiacs and Pirates. The QP will detect an Amphibian, but only a ship visit will earn the free TAs.

The expensive PQ transmits cure information about a Plague Planet's plague. That information is received the Cycom *after* the Plague Planet is probed. The owner of the PQ becomes immune to the plague for year 4 of the Cycom following the probe's entry. Use of the PQ is reported as a QP on the Warp Ripple Report.

TA-51 Super Questor Probe

Descriptive: An unmanned surveillance probe with an omni-encryption, multi-frequency, quantum transmission system. Once emplaced, it reports all warp ins at a star.

Designation: SQP

Prerequisite: TA-50 Questor Probe

Development Cost: 128 MT

Item Cost: 8 MT. Carried by merchant ships, 2 per GU carrying capacity.

When inoperable: When destroyed by a warship equipped with TA-53 Questor Probe Destruction Device (p.157).

Narrative: Installation of the SQP is the same as for the TA-50 Questor Probe (QP), above. The planet of value can be either friendly, enemy or neutral. The SQP drifts undetected to the planet's surface, which must be a production center star with 2 or more factories, but not a Rogue Planet or Home Star. The SQP will continue to operate even if all FY are subsequently destroyed or removed. Only 1 SQP per star may be installed.

The SQP consumes warp juice just as would a ship and makes a warp ripple report as an SQP the year after arrival and each year thereafter (see the QP line on p.105) until it is killed (TA-53 Anti-QP Gunlaying Mechanism p.157) or retrieved by its owner with a merchant ship. A merchant lands on the planet of value for 1 battle board turn to retrieve the SQP.

The SQP issues yearly reports to its owner about the speed and size designations of all ships warping in to that star. It reports nothing else. The SQP is useful to pair with a ship on ambush after the enemy conquers a production center star because it provides information to a friendly ship on ambush.

TA-52 Universal Questor Probe

Descriptive: An unmanned surveillance probe with an omni-encryption, multi-frequency, quantum transmission system. Once emplaced, it reports all warp ins and speed and size designations of ship construction projects at that star.

Designation: UQP

Prerequisite: TA-51 Super Questor Probe

Development Cost: 64 MT

Item Cost: 16 MT. Carried by merchant ships, 1 per GU carrying capacity.

When inoperable: When destroyed by a warship equipped with TA-53 Anti-QP Gunlaying Mechanism, below.

Narrative: The Universal Questor Probe's functionality is identical to TA-51 Super Questor Probe for reporting warp ins and has the additional capability of reporting the speed and size designations of ship construction projects at that star. The UQP also reports other items built at the star, such as Shipyards, Orbital Metroplises, Goodie Units, etc.

TA-53 Anti-QP Gunlaying Mechanism

Descriptive: The Anti-QP Gunlaying Mechanism is a combination QP detection device and gunlaying mechanism used to destroy Super and Universal Questor Probes.

Designation: (sqp)

Prerequisite: TA-51 Super Questor Probe

Development Cost: 128 MT

Item Cost: 16 MT. Must be carried by a standard 6- or 7-gun warship (p.131 only)

When inoperable: Destroyed as a TA according to Damage Table, p.133.

Narrative: The Anti-QP Gunlaying Mechanism (sqp) gives a 6- or 7-gun warship (FR, CL or CM, p.131 only) the capability of destroying either TA-51 Super Questor Probe (p.156) or TA-52 Universal Questor Probe, above. The (sqp) does *not* work against TA-50 Questor Probe (p.156).

The (sqp)-equipped FR, CL or CM must approach to within range 10 of the planet of value and fire a single 6-gun salvo, which destroys the SQP or UQP.

TA-60 Mark I Mass Production Capability

Descriptive: Mass production is a means to cut the cost of ships if more than 1 is made to a particular design.

Designation: MPC-I

Prerequisite: None

Development Cost: 132 MT

Item Cost: n/a

When inoperable: Never

Narrative: MPC-I allows a player to cut the cost of ships he builds if several are built having the same speed, the same number of guns and the same size name. The first ship costs 100%, but the second ship costs 90% and the third and subsequent ships 80%.

The cost reduction applies only to the basic ship and not to any TAs added on. Cost reduction applies retroactively in that ships built prior to the development of this TA allow ships built after this TA to get the cost reduction benefit. TA equipment need not be the same on all ships, except that the same types of torpedoes must be carried by all (marks may vary). All ships need not be built at the same time, or even during the same Katun.

This TA is used *only* for ships. It does *not* apply to items such as GU, FY, Hellfire Machines or Moon Fortresses, etc.

TA-61 Mark II Mass Production Capability

Descriptive: Enhanced mass production is a means to cut the cost of ships even more if more than one is made to a particular design.

Designation: MPC-II

Prerequisite: TA-60 Mark I Mass Production Capability

Development Cost: 64 MT

Item Cost: n/a

When inoperable: Never

Narrative: Same as MPC-I except that second and subsequent ships cost 70%.

TA-66 Accelerated Research

Descriptive: Accelerated Research allows for a third TA to be developed per Cycom by an empire. Also, 3 marks of 1 TA series to be developed in parallel. This provides a means for an empire to progress rapidly with the development of an important TA series.

Designation: None

Prerequisite: None

Development Cost: 128 MT

Item Cost: See Narrative, below.

When inoperable: Never

Narrative: Accelerated Research allows an empire to develop a third TA per Cycom, but if it does so, the third TA costs double. The third TA must always be the most expensive TA developed that Cycom.

Accelerated Research enables an empire to develop 3 TAs in a series in 1 Cycom. The first of the series has normal cost, the second doubles in cost and the third triples in cost.

A player also has the option of developing 2 TAs in a series plus a third unrelated TA in 1 Cycom. The unrelated TA is developed at normal cost, the first of the 2 TAs in the series costs double and the second TA in the series costs triple.

TA-70 Mark I Junking Center

Descriptive: The Junking Center is a salvage yard/recycling capability that is used to extract systems and materials from obsolete or damaged ships for a solid return on original investment. The Junking Center series of TAs are a substitute for upgrading ships, which is no longer possible.

Designation: n/a

Prerequisite: None

Development Cost: 4 MT

Item Cost: None (the Junking Center is a capability, not a facility).

When inoperable: Never

Narrative: The Junking Center technology allows a stellar empire to take any material item (ships, forts, TA weapons removed from ships, GU, FY, etc.) that costs MT and convert it to MT for a 50% return on the item's current cost to the nearest whole MT. If a player is currently using TAs 60-61 Mass Production Capability, p.158, junked ships yield only 50% of the mass production price. The same principle applies to Factories, installed TAs and other items that at times may have their cost reduced from retail. Ships can be damaged and junked for value. Items at production centers may be junked at any time for an instant return.

The junking capability exists at the home star and every production center star in a stellar empire. A Junking Center is an empire's capability and not a facility, so it cannot be captured. A production center star loses its junking capability when another empire captures the star. The capturing empire then uses its own junking capability at that star.

TA-71 Mark II Junking Center

Descriptive: The Mark II Junking Center is an efficiency upgrade over the Mark I

Designation: n/a

Prerequisite: TA-70 Mark I Junking Center

Development Cost: 8 MT

Item Cost: None

When inoperable: n/a

Narrative: The Mark II Junking Center is the same as the Mark I except that the rate of return from current cost is increased to 60%. Ships can be damaged. The Mark I is automatically upgraded to the Mark II.

TA-72 Mark III Junking Center

Descriptive: Mark III Junking Center is an efficiency upgrade over the Mark II

Designation: n/a

Prerequisite: TA-71 Mark II Junking Center

Development Cost: 16 MT

Item Cost: None

When inoperable: n/a

Narrative: The Mark III Junking Center is the same as Mark II except that the rate of return from current cost is increased to 70%. Ships can be damaged. The Mark II is automatically upgraded to the Mark III.

TA-73 Mark IV Junking Center

Descriptive: Mark IV Junking Center is an efficiency upgrade over the Mark III.

Designation: n/a

Prerequisite: TA-72 Mark III Junking Center

Development Cost: 16 MT

Item Cost: None

When inoperable: n/a

Narrative: The Mark IV Junking Center is the same as Mark I except that the rate of return from current cost is 80%. Damaged ships must be repaired before junking or revert to 70% return. The Mark III is automatically upgraded to the Mark IV.

TA-74 Mark V Junking Center

Descriptive: Mark V Junking Center is an efficiency upgrade over the Mark IV.

Designation: n/a

Prerequisite: TA-73 Mark IV Junking Center

Development Cost: 16 MT

Item Cost: None

When inoperable: n/a

Narrative: The Mark V Junking Center is the same as Mark I except that the rate of return from current cost is 90%. Damaged ships must be repaired before junking or revert to 75% return. The Mark IV is automatically upgraded to the Mark V.

TA-75 Mark VI Junking Center

Descriptive: Mark VI Junking Center is an efficiency upgrade over the Mark V.

Designation: n/a

Prerequisite: TA-74 Mark V Junking Center

Development Cost: 16 MT

Item Cost: None

When inoperable: n/a

Narrative: The Mark VI Junking Center is the same as Mark I except that the rate of return from current cost is 100%. Damaged ships must be repaired before junking or revert to 80% return. The Mark V is automatically upgraded to the Mark VI.

TA-80 Speed Upgrade Capability

Descriptive: The Ship Speed Upgrade Capability allows an empire to increase the speed of an existing ship without having to junk it (TA-70 series of Junking Center).

Designation: n/a

Prerequisite: None

Development Cost: 32 MT

Item Cost: Pay the cost difference between the old ship and the new plus 10% of the difference. Example: Upgrading a 6/S (p.131) to an 8/S costs 84 MT plus 8 MT for the 10% surcharge = 92 MT total. Affected TAs on the ship, if any, are upgraded at full cost difference.

When inoperable: n/a

Narrative: Speed upgrading for a ship must be done at a production-center star with FY (Shipyard not needed) and takes 1 full year. Ships during upgrade process may be destroyed by friendly or enemy ships firing 5 or more guns from range 10 or less at the victim on the planet of value. A damaged ship must be repaired before its speed can be upgraded.

The advantage of this TA is that it takes only 1 year to upgrade the speed of a ship, but a whole Cycom to junk an old ship and build a new and faster one. Work cannot be performed simultaneously with TA-81 Size Upgrade Capability, below.

TA-81 Size Upgrade Capability

Descriptive: The Size Upgrade Capability allows an empire to increase the size of already built large warships.

Designation: n/a

Prerequisite: None

Development Cost: 32 MT

Item Cost: Pay the cost difference between old ship and new plus 20%. Pay cost difference for TAs that rise in cost with size of ship; junk unused TAs. Speed cannot change. Ship must remain within its "Family," p.131; e.g., a CB cannot be enlarged beyond a DN.

When inoperable: n/a

Narrative: Applies to 10-gun warships (p.131) and larger up to the 38-gun L Leviathan and all merchants. The 5-gun CS can be directly upgraded to the 8-gun CA (only) and the CA to the 9-gun S. The 40-gun M Behemoth and larger cannot be upgraded. Size upgrading must be done at a production-center star and takes 1 full year. Upgrading requires a suitable TA-1030 series of Shipyard. Ships during upgrade process may be destroyed by friendly or enemy ships firing 5 or more guns from range 10 or less at the victim on the planet of value.

A damaged ship must be repaired before a size upgrade. Respect TA vs. ship size limits. Work cannot be performed simultaneously with TA-80 Speed Upgrade Capability.

TA-82 Expanded TA Weapons Suite

Descriptive: A ship with an Expanded Weapons Suite can carry 3 more TAs than other warships, although the xw itself counts as a TA, which results in a net gain of 2.

Designation: xw as in 6/BB.33xw, 7/TU.51xw, 4/DR.23xw, etc.

Development Cost: 4 MT.

Prerequisite: TA-340.14 14-16 Gun Warships, p.215. Limited to 14-gun ships and larger.

Item Cost: 10% of base cost of ship. Example: 8/Z would cost 77 MT extra plus TAs.

When inoperable: The xw can be destroyed in battle, but doing so does not take out any of the additional weapons systems it made possible.

Narrative: A ship with the xw can carry as many as 15 TAs instead of the usual 12 (p.142). The xw itself counts as a TA. Limited to 14-gun warships and larger.

Chapter 11



Deflectors



TA-100 Asteroid Deflector

Descriptive: The inexpensive to install Asteroid Deflector fends off the asteroids found at Protostars, T Tauri stars and Multiple Stars.

Designation: ad as in 4/Z.12ad, 10/TS.85ad, 8/S.6ad, etc.

Prerequisite: None

Development Cost: 32 MT

Item Cost: 2 MT – May be mounted on any ship

When inoperable: When destroyed as a TA, Damage Chart p.133

Narrative: The Asteroid Deflector protects only the ship mounting it from asteroids. That includes 100% protection against TA-490 series of Asteroid Torpedo. It also protects anything under tow by a TA-290 Tow Ship. It can be replaced by TA-110 Super Deflector or TA-150 Universal Deflector.

A ship that loses a deflector necessary for survival at a star will become a hulk at the start of the 4th battle board move after losing that deflector. A ship that enters pre-warp the 3rd battle board move or earlier and departs the star will escape without further damage.

TA-101 Radiation Deflector

Descriptive: The inexpensive to install Radiation Deflector fends off the excessive radiation (gamma rays, etc.) found at Neutron Stars, Pulsars, Magnetars, Giant Stars, Supergiant Stars and Multiple Stars.

Designation: rd as in 4/Z.12rd, 10/TS.85rd, 8/S.6rd, etc.

Prerequisite: None

Development Cost: 16 MT

Item Cost: 2 MT – May be mounted on any ship

When inoperable: When destroyed as a TA, Damage Chart p.133

Narrative: Radiation Deflector protects only the ship mounting it from radiation. It also protects anything under tow by a TA-290 Tow Ship. It can be replaced by TA-110 Super Deflector or TA-150 Universal Deflector.

A ship that loses a deflector necessary for survival at a star will become a hulk at the start of the 4th battle board move after losing that deflector. A ship that enters pre-warp the 3rd battle board move or earlier and departs the star will escape without further damage.

TA-102 Heat Deflector

Descriptive: The inexpensive Heat Deflector insulates a ship against the heat found near Protostars, T Tauri Stars, Giant Stars, Supergiant Stars and Multiple Stars.

Designation: hd as in 4/Z.12hd, 10/TS.85hd, 8/S.6hd, etc.

Prerequisite: None

Development Cost: 4 MT

Item Cost: 2 MT – May be mounted on any ship

When inoperable: When destroyed as a TA, Damage Chart p.133

Narrative: The Heat Deflector protects only the ship mounting it from excessive radiant heat. It also protects anything under tow by a TA-290 Tow Ship. It can be replaced by TA-110 Super Deflector or TA-150 Universal Deflector.

A ship that loses a deflector necessary for survival at a star will become a hulk at the start of the 4th battle board move after losing that deflector. A ship that enters pre-warp the 3rd battle board move or earlier and departs the star will escape without further damage.

TA-103 Magnetism Deflector

Descriptive: The inexpensive Magnetism Deflector degausses the magnetism found at Pulsars, Neutron Stars, Magnetars and Multiple Stars.

Designation: md as in 4/Z.12md, 10/TS.85md, 8/S.6md, etc.

Prerequisite: None

Development Cost: 8 MT

Item Cost: 2 MT – May be mounted on any ship

When inoperable: When destroyed as a TA, Damage Chart p.133

Narrative: The Magnetism Deflector protects only the ship mounting it from magnetism. It also protects anything under tow by a TA-290 Tow Ship. It can be replaced by TA-110 Super Deflector or TA-150 Universal Deflector.

A ship that loses a deflector necessary for survival at a star will become a hulk at the start of the 4th battle board move after losing that deflector. A ship that enters pre-warp the 3rd battle board move or earlier and departs the star will escape without further damage.

TA-104 Gravity Deflector

Descriptive: The Gravity Deflector nullifies the effects of gravity and inertia that is needed for TA-80 Advanced Maneuverability and visits to Pulsars, Neutron Stars, Magnetars or Multiple Stars.

Designation: gd as in 4/Z.12gd, 10/TS.85gd, 8/S.6gd, etc.

Prerequisite: None

Development Cost: 96 MT

Item Cost: 2 MT – May be mounted on any ship

When inoperable: When destroyed as a TA, Damage Chart p.133

Narrative: The Gravity Deflector protects only the ship mounting it from gravity and inertia. It also protects anything under tow by a TA-290 Tow Ship. It can be replaced by TA-110 Super Deflector or TA-150 Universal Deflector.

The Gravity Deflector is 100% effective against the TA-531 Mark I Gravity Bomb Torpedo (p.285), but only if it is mounted separately on a ship. See p.286 for the gd's declining effectiveness against later marks of the Gravity Bomb Torpedo.

A ship that loses a deflector necessary for survival at a star will become a hulk at the start of the 4th battle board move after losing that deflector. A ship that enters pre-warp the 3rd battle board move or earlier and departs the star will escape without further damage.

TA-110 Super Deflector

Descriptive: The inexpensive Super Deflector protects a ship from asteroids, radiation, heat, magnetism and gravity.

Designation: sd as in 4/Z.12sd, 10/CB.85sd, c8/S+.6sd, etc.

Prerequisite: TA-100 Asteroid Deflector, TA-101 Radiation Deflector, TA-102 Heat Deflector, TA-103 Magnetism Deflector and TA-104 Gravity Deflector.

Development Cost: 4 MT

Item Cost: 4 MT – May be mounted on any ship

When inoperable: When destroyed as a TA, Damage Chart p.133

Narrative: Provides 100% protection against asteroids, radiation, heat and magnetism by combining the capabilities of TA-100 Asteroid Deflector, TA-101 Radiation Deflector, TA-102 Heat Deflector, TA-103 Magnetism Deflector and TA-204 Gravity Deflector.

A ship that loses a deflector necessary for survival at a star will become a hulk at the start of the 4th battle board move after losing that deflector. A ship that enters pre-warp the 3rd battle board move or earlier and departs the star will escape without further damage.

Earlier marks need not be removed before the sd can be installed.

TA-120 Mark I Torpedo Deflector

Descriptive: The Torpedo Deflector is partially effective in protecting a ship against the blast effects of some torpedoes.

Designation: td as in 4/Z.12td, 10/CB.85td, c8/S.6td, etc.

Prerequisite: None

Development Cost: 16 MT

Item Cost: 4 MT – May be mounted on any ship that has 5 or more guns (long or short)

When inoperable: When destroyed as a TA, Damage Chart p.133

Narrative: The Torpedo Deflector protects only the ship mounting it from 33% (one-third, rounded off to nearest whole number) of the blast effect from the torpedoes listed below:

- TA-450 series of Unguided Torpedoes
- TA-460 series of Phyton Torpedoes
- TA-470 series of Homing Torpedoes
- TA-480 series of Toss Torpedoes
- TA-500 series of Meandering Medusa
- TA-509 Super Meandering Medusa, excluding TA-490 series of Asteroid Torpedo
- TA-570 series of Mine
- TA-572 MineTorp

TA-121 Mark II Torpedo Deflector

Descriptive: Same as Mark I except for increased item cost and effectiveness.

Designation: td² as in 8/CS.12td², 10/CB.85td², 6/BB.13td², etc.

Prerequisite: TA-120 Mark I Torpedo Deflector

Development Cost: 32 MT

Item Cost: 7 MT – May be mounted on any ship that has 5 or more guns (long or short)

When inoperable: When destroyed as a TA, Damage Chart p.133

Narrative: Identical to the Mark I except that the blast effect is cut by 50% (one-half, rounded off to nearest whole number).

A Mark I must be junked before it can be replaced by the Mark II.

TA-122 Mark III Torpedo Deflector

Descriptive: Same as Mark II except for increased item cost and effectiveness.

Designation: td³ as in 8/CS.12td³, 10/CB.85td³, 6/BB.13td³, etc.

Prerequisite: TA-121 Mark II Torpedo Deflector

Development Cost: 48 MT

Item Cost: 10 MT – May be mounted on any ship that has 5 or more guns (long or short)

When inoperable: When destroyed as a TA, Damage Chart p.133

Narrative: Identical to the Mark II except that the blast effect is cut by 67% (two-thirds, rounded off to nearest whole number).

A Mark II must be junked before it can be replaced by the Mark III.

TA-130 Mark I Torpedo Interceptor

Descriptive: The Torpedo Interceptor is partially effective against certain types of torpedoes and is used as a supplement to the TA-120 series of Torpedo Deflectors.

Designation: ti as in 8/CS.12ti, 10/CB.85ti, 6/D.13ti, etc.

Prerequisite: None

Development Cost: 16 MT

Item Cost: 4 MT – May be mounted on any ship, including merchants, etc.

When inoperable: When destroyed as a TA, Damage Chart p.133.

Narrative: The Torpedo Interceptor tosses an “object” to a range of 2 on the battle board, which has 33% effectiveness against incoming torpedoes of the following types:

- TA-450 series of Unguided Torpedoes, except Mark V and later
- TA-460 series of Phyton Torpedoes, except the Mark VI and later
- TA-470 series of Homing Torpedoes, except the Mark V and later
- TA-480 series of Toss Torpedoes, except Mark V and later
- TA-540 series of Dislocation Torpedo, except the Mark IV
- TA-553/554/555 Marks IV/V/VI White Hole Torpedo
- TA-560 series of Time Stasis Torpedo

The ti can fire any number of times, but only once against each torpedo, and is fired simultaneously with torpedoes. A roll of a 6-sided die determines if the ti was effective:

- 1, 2 – ti effective
- 3, 4, 5, 6 – ti fails

TA-131 Mark II Torpedo Interceptor

Descriptive: Same as Mark I except for increased cost and effectiveness.

Designation: ti² as in 8/CS.12ti², 10/CB.85ti², 6/BB.13ti², etc.

Prerequisite: TA-130 Mark I Torpedo Interceptor

Development Cost: 32 MT

Item Cost: 7 MT – May be mounted on any ship, including merchants

When inoperable: When destroyed as a TA, Damage Chart p.133.

Narrative: Identical to the Mark I except that the effectiveness is increased to 50%, which is determined by the roll of a 6-side die:

- 1, 2, 3 – ti² effective
- 4, 5, 6 – ti² fails

TA-132 Mark III Torpedo Interceptor

Descriptive: Same as Mark II except for increased cost and effectiveness.

Designation: ti³ as in 8/CS.12ti³, 10/CB.85ti³, 6/BB.13ti³, etc.

Prerequisite: TA131 Mark II Torpedo Interceptor

Development Cost: 48 MT

Item Cost: 10 MT – May be mounted on any ship, including merchants

When inoperable: When destroyed as a TA, Damage Chart p.133

Narrative: Identical to the Mark II except that the effectiveness is increased to 67%, which is determined by the roll of a 6-side die:

- 1, 2, 3, 4 – ti³ effective
- 5, 6 – ti³ fails

TA-133 Mark IV Torpedo Interceptor

Descriptive: The Mark IV is similar to the Mark I except for the increased cost and specialized use against the Marks VII through Mark X Homing Torpedoes (p.261).

Designation: ti^4 as in 8/BB.12 ti^4 , 10/Z.85 ti^4 , 6/P.13 ti^4 , etc.

Prerequisite: TA-150 Universal Deflector

Development Cost: 128 MT

Item Cost: 64 MT – Must be mounted on a 14-gun BB Battleship (p.131) or larger. Must be mounted in addition to TA-150 Universal Deflector to be effective.

When inoperable: When destroyed as a TA, Damage Chart p.133.

Narrative: Identical to the Mark I Torpedo Interceptor in method of operation, except that it is effective against only the TA-488 series of Marks VII through X Homing Torpedoes described on p.261. Note that no mark of Torpedo Interceptor works against the Marks V or VI of most torpedo types (see list under TA-130 on p.167).

The effectiveness of the Mark IV is 16.67%. Roll once for each incoming torpedo reaching target after other reductive measures, such as accuracy and Hallucination Projector, have been utilized. Use 6-sided dice: • 1 – ti^4 effective • 2, 3, 4, 5, 6 – ti^4 fails

After determining the number of torpedo hits, calculate attack factor (p.133) and use Damage Chart (p.133) to compute damage.

TA-134 Mark V Torpedo Interceptor

Descriptive: Same as the mark IV except for the increased effectiveness.

Designation: ti^5 as in 8/BB.12 ti^5 , 10/Z.85 ti^5 , 6/DA.14 ti^5 , etc.

Prerequisite: TA-133 Mark IV Torpedo Interceptor

Development Cost: 64 MT

Item Cost: 64 MT – Must be mounted on a 14-gun BB Battleship (p.131) or larger. Must be mounted in addition to TA-150 Universal Deflector to be effective.

When inoperable: When destroyed as a TA, Damage Chart p.133.

Narrative: Same as the Mark IV except that the effectiveness of the Mark V is 33.33%. Use 6-sided dice: • 1, 2 – ti^5 effective • 3, 4, 5, 6 – ti^5 fails

There is no automatic upgrading of existing Mark IVs after the Mark V has been developed. A ship with Mark IVs or earlier must warp into and out of a friendly production center star, after which the ship's ti is considered upgraded at no cost. No time is required.

TA-135 Mark VI Torpedo Interceptor

Descriptive: Same as the Mark V except for the increased effectiveness.

Designation: ti^6 as in 8/BB.12 ti^6 , 10/Z.85 ti^6 , 6/QU.15 ti^6 , etc.

Prerequisite: TA-134 Mark V Torpedo Interceptor

Development Cost: 32 MT

Item Cost: 64 MT – Must be mounted on a 14-gun BB Battleship (p.131) or larger. Must be mounted in addition to TA-150 Universal Deflector to be effective.

When inoperable: When destroyed as a TA, Damage Chart p.133.

Narrative: Same as the Mark V except that the effectiveness of the Mark VI is 50%. Use 6-sided dice: • 1, 2, 3 – ti^6 effective • 4, 5, 6 – ti^6 fails

There is no automatic upgrading of existing Mark Vs after the Mark VI has been developed. A ship with Mark Vs or earlier must warp into and out of a friendly production center star, after which the ship's ti is considered upgraded at no cost. No time is required.

TA-140 Torpedo Deflector/Interceptor

Descriptive: The Torpedo Deflector/Interceptor is reasonably effective against certain types of torpedoes. Cost is reduced from mounting the 2 deflectors separately.

Designation: tdi as in 8/CS.12tdi, 10/CB.85tdi, 6/D.13tdi, etc.

Prerequisite: TA-122 Mark III Torpedo Deflector and TA-132 Mark III Torpedo Interceptor

Development Cost: 48 MT

Item Cost: 12 MT – May be mounted on a warship with 3 or more guns

When inoperable: When destroyed as a TA, Damage Chart p.133. The ti³ portion of the tdi is effective against torpedoes as indicated on p.167. The td³ portion of the tdi is effective against torpedoes as indicated on p.166.

Narrative: The tdi offers the combined capabilities of the TA-122 Mark III Torpedo Deflector and the TA-132 Mark III Torpedo Interceptor. Briefly, a ship under attack by torpedoes uses the Mark III ti first, and if that fails, uses the Mark III td. An attacking torpedo is affected as follows:

Roll 6-side die for the ti:

- 1, 2, 3, 4 – ti effective
- 5, 6 – ti fails

If the ti fails, reduce blast effect by 67% (two-thirds) for the td. Round off to nearest whole number.

TA-150 Universal Deflector

Descriptive: The Universal Deflector protects a ship from asteroids, radiation, heat and magnetism as well as torpedoes.

Designation: ud as in 4/Z.12ud, 10/CB.85ud, c8/S.6ud, etc.

Prerequisite: TA-110 Super Deflector and TA-140 Torpedo Deflector/Interceptor

Development Cost: 16 MT

Item Cost: 16 MT – May be mounted on a warship with 5 or more guns

When inoperable: When destroyed as a TA, Damage Chart p.133.

Narrative: Combines the capabilities of TA-110 Super Deflector (p.165) and TA-140 Torpedo Deflector/Interceptor (p.169).

A ship that loses a deflector necessary for survival at a star will become a hulk at the start of the 4th battle board move after losing that deflector. A ship that enters pre-warp the 3rd battle board move or earlier and departs the star will escape without further damage.

TA-155 Mark I Electromagnetic Burst Torpedo Deflector**TA-156 Mark II Electromagnetic Burst Torpedo Deflector****TA-157 Mark III Electromagnetic Burst Torpedo Deflector**

Descriptive: The TA-520 series of Electromagnetic Burst Torpedo, p.282, is an effective weapon that is especially useful against big warships. The Electromagnetic Burst Torpedo Deflector reduces that effectiveness.

Designation: Mark I: ed¹ as in 4/Z.12ed¹, 10/CB.85ed¹, c8/CS.6ed¹, etc.

Mark II: ed² as in 4/Z.14ed², 10/CB.86ed², c8/CA.5ed², etc.

Mark III: ed³ as in 4/Z.17ed³, 10/BB.87ed³, c8/M.4ed³, etc.

Prerequisite: TA-520 Mark I Electromagnetic Burst Torpedo, p.282.

Development Cost: Mark I: 32 MT	Must be developed in sequence
Mark II: 64 MT	
Mark III: 128 MT	

Item Cost: Mark I: 1 x number of long guns, 5 long guns and larger

Mark II: 3 x number of long guns, 8-gunners and larger

Mark III: 5 x number of guns, 14-gunners and larger

Examples: A Mark I on an 8-gunner would cost 8 MT

A Mark II on a 17-gunner would cost 51 MT

A Mark III on a 40-gunner would cost 200 MT

When inoperable: When destroyed as a TA, Damage Chart p.133.

Narrative: The Electromagnetic Burst Torpedo Deflector offers varying degrees of protection against the effects of the TA-520 series of Electromagnetic Burst Torpedo, p.282.

Mark I: Limits loss to 3 engines or 3 TAs

Mark II: Limits loss to 2 engines or 2 TAs

Mark III: Limits loss to 1 engine or 1 TA

There are many types of armor and deflectors available to protect warships. The ed is the only TA that offers protection against the Electromagnetic Burst Torpedo. TA-344 Armored Warships – TAs and TA-345 Armored Warships – Engines provide no protection against the TA-520 series of Electromagnetic Burst Torpedo, p.282.

TA-160 Heat Deflector for Torpedoes

Descriptive: The Heat Deflector for Torpedoes equips several types of torpedoes to travel through a TA-377 Heliostatic Hellfire Machine's (p.226) blast pattern.

Designation: hd added to the torpedo's normal designation followed by the torpedo's attack factor, as in: 10//S.44*hd⁵⁴, 8/DN.43•hd⁶⁰, 9/CB.42øhd⁶⁶, 7/CA.41^^^^hd, etc.

Prerequisite: TA-102 Heat Deflector, p.163, and the mark of torpedo to be protected.

Development Cost: 4 MT

Item Cost: 2 MT per torpedo protected. A ship must add an hd to all or none of its complement of torpedoes. A ship's torpedo capacity is not reduced. A Fortress hd-equips its torpedoes by 8-gun modules.

When inoperable: Same as for a torpedo without the hd added.

Narrative: An hd-equipped torpedo can travel through a Heliostatic Hellfire Machine's (p.226) blast pattern without getting fried. The drawback is the increased cost of each torpedo. The torpedoes that can be hd-equipped are:

- TA-450 series of Unguided Torpedo – all marks
- TA-1290 series of Thunder Torpedo – all marks
- TA-460 series of Phyton Torpedo – already passes through hellfire unhindered
- TA-470 series of Homing Torpedo – all marks
- TA-480 series of Toss Torpedo – all marks
- TA-490 series of Asteroid Torpedo – all marks (but not cost-effective)
- TA-500 series of Meandering Medusa – all marks
- TAs 508, 509, 1070 Marks I, II, III Super Meandering Medusa – CANNOT BE FITTED
- TA-510 series of Negative Energy Torpedo – all marks
- TA-520 series of Electromagnetic Burst Torpedo – all marks
- TA-530 series of Gravity Bomb Torpedo – all marks
- TA-540 series of Dislocation Torpedo – all marks
- TA-550 series of White Hole Torpedo – all marks
- TA-560 series of Time Stasis Torpedo – all marks
- TA-570 series of Mine – CANNOT BE FITTED
- TA-572 MineTorp – CANNOT BE FITTED

A ship can upgrade its torpedoes by passing through a friendly production center star and paying the upgrade cost. No stopping time is required.

TA-170 Unguided Torpedo Interceptor

Descriptive: The Unguided Torpedo Interceptor is used by a ship that is *not* armed with Unguided Torpedoes to intercept and destroy incoming enemy Marks I through XIX Unguided Torpedoes or the TA-1290 series of Thunder Torpedo. This is a much enhanced technological advancement to the TA-132 Mark III Torpedo Interceptor.

Designation: uti⁸ through uti³² the superscript number indicating the number of interceptors carried by a ship, as in 8/CA.8uti³², 7/P.53ad|rd|hd|md|gd|uti⁸, 9/S.0uti²⁴, etc.

Prerequisite: TA-454 Mark V Unguided Torpedo (p.250)

TA-132 Mark III Torpedo Interceptor (p.167)

Development Cost: 64 MT

Item Cost: uti⁸ – 24 MT

uti¹² – 32 MT

uti¹⁶ – 40 MT

uti²⁰ – 48 MT

uti²⁴ – 56 MT

uti²⁸ – 64 MT

uti³² – 72 MT

Must be on a ship with 8 long guns or larger that does *not* carry Unguided Torpedoes. OK for specialty ships with unusual gun configurations that have 8-gunner or better capabilities. Also the following:

- TA-377 series of Heliostatic Hellfire Machine, p.226

When inoperable: When destroyed as a TA, Damage Chart p.133.

Narrative: The Unguided Torpedo Interceptor defuses an approaching TA-450 series of Unguided Torpedo, starting p.247, and TA-1290 series of Thunder Torpedo, p.476. The defusing process occurs at range 4 and at no other range, which may cause the uti to fail under extremely close quarters fighting. A defused Unguided Torpedo does not explode.

A ship may fire 1 or more uti in each of the 8 directions per battle board turn. Each uti interacts on a 1:1 basis with incoming Unguided Torpedoes. The number of uti fired is automatically equal to the number of incoming torpedoes.

Multiple Super Meandering Medusas (TAs 508 & 509, p.275) can each fire a Mark V and later Unguided Torpedo down the same track and score 2 or more hits on a single target. In this case, 1 uti can be fired per enemy Medusa aligned in the same direction.

Use a 6-sided die to determine the uti's failure rate:

Marks I through VI Unguided Torpedo 1, 2, 3, 4, 5 = torpedo defused

6 = torpedo hits target

Marks VII through IX Unguided Torpedo 1, 2, 3, 4 = torpedo defused

5, 6 = torpedo hits target

Marks X through XII Unguided Torpedo 1, 2, 3 = torpedo defused

4, 5, 6 = torpedo hits target

Marks XIII through XIX Unguided Torpedo 1, 2 = torpedo defused

3, 4, 5, 6 = torpedo hits target

Marks I through III Thunder Torpedo 1 = torpedo defused

2, 3, 4, 5, 6 = torpedo hits target

A ship can reload or increase the size of its uti by landing on the planet of value of a freely production center star for 1 battle board move. Reloads are free. Cost difference must be paid if size is upgraded.

Chapter 12



Mining

&

Support Ships



TA-200.1 Warp Juice Mining Module**TA-200.2 Warp Juice Mining Module****TA-200.4 Warp Juice Mining Module****TA-200.16 Super Warp Juice Mining Module**

Descriptive: Warp juice is a mysterious quantity that is part matter, part time and part eighth dimension. It is found in the near vicinity of a Neutron star, Pulsar or Magnetar and is necessary to power the warp drive of ships that wish to travel among the stars.

Designation: wjm as in 8/CU.14wjm¹|rd|md|gd, 8/CA.36wjm⁴|rd|md|gd, etc.

Development Cost: 64 MT for TA-200.1 wjm¹
 8 MT for TA-200.2 wjm²
 4 MT for TA-200.4 wjm⁴
 64 MT for TA-200.16 wjm¹⁶

Prerequisite: TA-200.1: TA-101 Radiation Deflector, TA-103 Magnetism Deflector and TA-104 Gravity Deflector. Or TA-110 Super Deflector.
 Must be mounted on a warship with 5 or more long guns.

Cost: 20 MT – wjm¹ mines warp juice for 1 fleet; Pulsar only.
 (Up to 4 wjm¹ – must be carried on a single ship; 1 ship per Pulsar)
 40 MT – wjm² mines warp juice for 2 fleets; Neutron Star only.
 (Up to 2 wjm² – must be carried on a single ship; 1 ship per Neutron Star)
 60 MT – wjm⁴ mines warp juice for 4 fleets; Magnetar only.
 (Up to 4 wjm⁴ may operate at a Magnetar spread among 1 - 4 ships)
 120 MT – wjm¹⁶ mines warp juice for 16 fleets; Magnetar only.
 (Up to 2 wjm¹⁶ may operate at a Magnetar spread between 1 or 2 ships)

When inoperable: When ship is damaged. Warp juice must be used the next Cycom.

Narrative: An empire's home star manufactures enough warp juice to power 4 fleets to make warp jumps per Cycom. The cost of warping cannot be split between 2 fleets each making partial warp movements. Pulsars, Neutron Stars and Magnetars produce warp juice as per the chart under cost, above.

A ship mining warp juice must be stationed 1 square south of the Pulsar/Neutron Star/Magnetar. A second ship will be 1 square north, a third will be 1 square east and a fourth 1 square west. A wjm-equipped ship must be on station at the beginning of a Cycom, or warp in on year 1, to be able to produce warp juice. A wjm-equipped ship that is chased or destroyed by an enemy still produces warp juice to the end of the Cycom. A warp juice mining operation that is *voluntarily* interrupted by warping out produces no warp juice that Cycom.

A wjm-equipped ship must all its engines undamaged to be able to mine warp juice

The parent ship may carry any TAs available to that size of ship. TA-101 Radiation Deflector (p.163), TA-103 Magnetism Deflector (p.164) and TA-104 Gravity Deflector (p.164), which are required for a ship to mine warp juice, cost extra.

A ship that loses a deflector necessary for survival at a star will become a hulk at the start of the 4th battle board move after losing that deflector, unless it warps out.

A wjm-equipped ship has a liability in that mining activity as well as warping in show up as warp ripples and are reported on each Cycom's Warp Ripple Report (p.104). Each wjm-equipped ship engaged in mining must make a warp ripple report, even if several are at the same star. That may cause multiple warp ripple reports emanating from a single star even if the wjm-equipped ships are united in a single fleet.

TA-210 Mark I Hyggyns Mining Ship**TA-211 Mark II Hyggyns Mining Ship****TA-212 Mark III Hyggyns Mining Ship**

Descriptive: The Hyggyns Mining Ship is stationed at a protostar to mine a hideously addictive drug called Hyggyns Overdrive Potion (HOP) that is much in demand by the downtrodden population of your puny empire. The ship has powerful space dust gathering and processing equipment, which is used to create HOP. The king thinks it is a fine idea to make an individual HOP because productivity is doubled and lifespan halved.

Designation: HMS as in Mark I: 10/HMS.13

Mark II: a10/HMS.14

Mark III: a10/HMS.15*****, b10/HMS.16••••• or
c10/HMS.17øø⁴², etc.

Prerequisite: Mark I: TA-100 Asteroid Deflector

TA-102 Heat Deflector

TAs 320-323 Warp Speed 7, 8, 9 and 10

Mark II: TA-210 Mark I Hyggyns Mining Ship

TA-600a Ambush Drive

Mark III: TA-211 Mark II Hyggyns Mining Ship

TA-455 Mark VI Unguided Torpedo

or TA-475 Mark VI Homing Torpedo

or TA-481.6 Mark VI Toss Torpedo

Development Cost: Mark I: 4 MT

Mark II: 4 MT

Mark III: 32 MT

Must be developed in sequence

Item Cost: Mark I: 28 MT, which *includes* built-in TA-100 ad and TA-102 hd deflectors.

Mark II: 32 MT, which *includes* built-in TA-600 series of Ambush Drive and Mark I's TAs.

Mark III: 36 MT, which *includes* 1 built-in Unguided, Homing or Toss Torpedo and Mark II's TAs. Note that there is only 1 torpedo.

When inoperable: When ship is hulked or destroyed.

Narrative: An HMS must be stationed at a Protostar or T Tauri star during an entire Cycom (cannot warp in or out). Each Cycom the HMS spends mining a Protostar or T Tauri star results in 4 MT (1-MT/year) of increased income per Cycom to an empire's IMLO Bank account. The HMS income is recorded on a special chart, p.90.

The ship has no guns. Always built to speed 10 with warp drive limited to proceeding in *deep space* toward a Protostar, T Tauri Star or friendly production center star with 4 or more Factories. Several HMS may form a fleet and drop off a ship each year at a series of Proto or T Tauri Stars. Drug runners refuse dangerous scouting work.

Only 1 HMS may work a Protostar or T Tauri star at a time. First arrival has dibs. Ship with lowest hull number wins in case of simultaneous arrival.

A Hyggyns Mining Ship will not surrender to a warship. It must be destroyed. A fruitless pursuit on the battle board does not interrupt its HOP harvesting activities. This applies even to a multi-year stalemate on the battle board.

The diagrams on p.116-117 illustrate the mining locations of an active HMS, which may be a severe handicap for escaping the attack of a hostile marauder.

TA-215 Bluu Mining Module

Descriptive: Bluu is a rare compound that is combined with radd to increase an empire's industrial output. It is found in the near vicinity of a Blue Supergiant or Blue Giant Star and to a lesser extent at a Red Supergiant Star, but not at a Red Giant.

Designation: blu as in 4/CA.74blu, 6/Z.32blu, 8/CB.39blu, etc.

Prerequisite: TA-101 Radiation Deflector and TA-102 Heat Deflector. Must be mounted on a warship that has a total of 5 or more guns (long and short).

Development Cost: 48 MT

Item Cost: 50 MT

When inoperable: When parent ship is hulked or destroyed or parent ship's blu TA is destroyed.

Narrative: Must operate as half a pair of ships to mine bluu and radd at Blue Supergiant, Blue Giant or Red Supergiant stars. Can mine at an undeveloped Red Giant Star.

The two ships carrying the blu and rad TAs produce 10-MT/year or 40-MT/Cycom. The MT are deposited in an empire's IMLO Bank account each Cycom. Production gained by mining a giant star begins the Cycom after the arrival of the mining ship team. Production ends the Cycom after the departure or destruction of the mining team.

Must be mounted on a ship with 5 or more guns.

The blu- and rad-equipped mining ships are stationed as a team off the north (blu) and south (rad) poles of a giant/supergiant star while conducting mining operations. This is why there must always be two ships. For game purposes, the ships appear on the Battle Board at range 2 to the north and south of the planet of value.

TA-216 Radd Mining Module

Descriptive: Radd is a rare compound that is combined with bluu to increase an empire's industrial output. It is found in the near vicinity of a Red Supergiant or to a lesser extent at a Blue Supergiant or Blue Giant Star, but not at a Red Giant.

Designation: rad as in 4/CA.74rad, 6/Z.32rad, 8/CB.39rad, etc.

Prerequisite: TA-101 Radiation Deflector and TA-102 Heat Deflector. Must be mounted on a warship that has a total of 5 or more guns (long and short).

Development Cost: 48 MT

Item Cost: 50 MT

When inoperable: When parent ship is hulked or destroyed or parent ship's rad TA is destroyed.

Narrative: Must operate as half a pair of ships to mine radd and bluu at Red Supergiant, Blue Supergiant or Blue Giant stars. Can mine at an undeveloped Red Giant Star.

The two ships carrying the rad and blu TAs produce 10-MT/year or 40-MT/Cycom. The MT are deposited in an empire's IMLO Bank account each Cycom. Production gained by mining a giant star begins the Cycom after the arrival of the mining ship team. Production ends the Cycom after the departure or destruction of the mining team.

Must be mounted on a ship with 5 or more guns.

The blu- and rad-equipped mining ships are stationed as a team off the north (blu) and south (rad) poles of a giant/supergiant star while conducting mining operations. This is why there must always be two ships. For game purposes, the ships appear on the Battle Board at range 2 to the north and south of the planet of value.

TA-220 Asteroid Miner

Descriptive: The Asteroid Miner is a grungy and decrepit ship manned by a scruffy crew of intemperate misfits and mercenaries of doubtful loyalty. The ship produces a nice profit for the hiring manager by mining for rare minerals and valuable jewels in the rich but dangerous asteroid belts found in some solar systems.

Designation: AM as in 4/AM.49ds, etc. Always built to speed 4

Prerequisite: TA-110 Super Deflector (p.165)

Development Cost: 32 MT

Item Cost: 40 MT, which includes cost of TA-110 Super Deflector, sd. Always speed 4 with unlimited warp drive.

When inoperable: When destroyed.

Narrative: The AM is an unarmed mining ship that finds valuable resources in the asteroid belts of any uncolonized main sequence star or at an unoccupied binary star. The crew hates civilization, which is why the ship *will* move on if the star is colonized. The crew also hates you and will not work if you have any ships present at the star being mined. In fact, they hate you so much that they'll defect to any warship carrying 1 or more guns that succeeds in closing within gun range 10. The new owner then utilizes the ship as one of his own. The new owner also has the option of taking the crew off the AM and abandoning the hulk in a deep space square on the star chart where the ship is lost and can never be retrieved.

Each AM your empire captures or destroys results in a one-time reward of 20 MT, but only if you destroy the ship after its capture and only if TA-310 Omnificent War Leader (OWL) (p.208) has been developed. This represents the collective IMLO bounty placed on the heads of this nefarious crew of deserters, chiselers, scoundrels and perverts.

The mining effort produces 4-MT/year or 16-MT/Cycom. Production begins the Cycom after arrival at the star. Production ends the Cycom after the AM stops mining for you for any reason. The truth is that the ship produces 8-MT/year, not 4, but 2-MT/year goes to IMLO and the other 2-MT/year goes to the raggedy crew of cutthroats, which is why they do anything at all. Be happy your smelly empire even gets half.

The battle board used to attack an AM is identical to that used with a Geode Moon Base, except that the GMB is replaced by another rock. The AM will be range 1 from that rock. This battle board is illustrated on p.244.

TA-225 Planet Butcher

Descriptive: The Planet Butcher extracts everything of worth from a planet of value at an enemy-colonized Main Sequence star. This evil ship enslaves sentient beings, removes valuable minerals and alloys from the soil, kills off all native life forms, sterilizes the oceans and poisons the atmosphere. The owner of the Planet Butcher gets a one-time reward for this despicable act.

Designation: pbu as in 6/E.223pbu, 8/E.17pbu, 4/E.13pbu, etc. (ship is reported to enemy as E Class merchant, until it does its dirty work when the pbu function is revealed).

Prerequisite: None

Development Cost: 48 MT

Item Cost: Same as an Echo Class Cargo Ship (p.130). The ship has no guns or TAs but does have unlimited warp drive.

When inoperable: When the pbu-equipped ship is hulked or destroyed

Narrative: A pbu slaughters enemy 1-MT/year planets for a profit of 60 MT. The planet of value is permanently rendered incapable of MT production. The pbu's owner announces the completed butchery to all other players by requesting that a w for worthless be added next to the star's symbol on all star charts.

Procedure: First Cycom – The pbu-equipped ship arrives at the star to be butchered

Second Cycom – The pbu conducts the butchering process

Third Cycom – pbu departs; owner gets 60 MT at start of Cycom. All other players are notified that a w has been added to the star's map symbol.

No harm is done to the planet if butchery is interrupted before completion.

TA-226 Super Planet Butcher

Descriptive: Same as TA-103 Planet Butcher.

Designation: spb as in 6/E.223spb, 8/E.17spb, 4/E.13spb, etc. (ship is reported to enemy as E Class merchant, until it does its dirty work when the spb function is revealed).

Prerequisite: TA-103 Planet Butcher

Development Cost: 32 MT

Item Cost: Same as an Echo Class Cargo Ship (p.130). The ship has no guns or TAs but does have unlimited warp drive.

When inoperable: When the spb is hulked or destroyed

Narrative: An spb slaughters enemy 1-MT/year planets for a profit of 90 MT. Otherwise same as TA-225 pbu.

TA-227 Evil Planet Butcher

Descriptive: Same as TA-103 Planet Butcher.

Designation: epb as in 6/E.223epb, 8/E.17epb, 4/E.13epb, etc. (ship is reported to enemy as E Class merchant, until it does its dirty work when the epb function is revealed).

Prerequisite: TA-103 Planet Butcher and TA-104 Planet Butcher

Development Cost: 16 MT

Item Cost: Same as an Delta Class Cargo Ship (p.130). The ship has no guns or TAs but does have unlimited warp drive.

When inoperable: When the epb is hulked or destroyed

Narrative: An epb slaughters your own 1-MT/year planets for a profit of 120 MT. Otherwise same as TA-225 pbu.

TA-230 Diamond Trader

Descriptive: The Diamond Trader is a specially equipped warship that gathers gigantic diamonds from the scorched surface of a planet orbiting a star that has exploded. The enormous diamonds, which range in size from boulders to bolides, are so valuable that empires will import vast numbers to satiate the demands of an insatiable populace. The resulting trade deficit so unbalances an empire's economy that war usually results.

Designation: dt as in 4/Z.74sd | dt, 6/CA.32sd | dt, 8/CB.39sd | dt, etc.

Prerequisite: TA-110 Super Deflector. Must be mounted on a ship with 5 or more guns with unlimited warp drive.

Development Cost: 32 MT. May not be developed until the second Katun of a game.

Item Cost: 50 MT. The dt-ship must mount a TA-110 Super Deflector.

When inoperable: When the dt TA is destroyed or the parent ship loses all battle board or warp speed. Ship also must have at least 5 guns operable.

Narrative: The Diamond Trader is a 5-gun warship or larger that is stationed next to the planet of value of a recently exploded star. The ship mines immense diamonds that are sold to IMLO (p.144) for 100-MT/Cycom. IMLO turns around and sells the diamonds for 150 MT/Cycom per player. Non-mining empires resell the diamonds at retail for 200 MT/Cycom, which boosts the economy by that amount: 200 MT/Cycom. The net gain for the Diamond Trader is 100 MT/Cycom, 50 MT for IMLO and 50 MT for participating players.

The owner of the Diamond Trader will notify all other players in a game via the Warp Ripple Report that diamonds are available at the end of the Cycom after which mining operations have begun. Make a fleet notation on the Warp Ripple Report that you are having a "Diamond Sale." Make this notation at the end of each Cycom in which the Diamond Trader has operated. Players then may purchase the diamonds the next Cycom.

A Diamond Trader forced away from its mining site next to the planet of value will not cut off the supply of diamonds for the current Cycom, but does for the subsequent Cycom.

Cycom 1 – Diamond Trader arrives and begins mining operations.

Cycom 2 – Diamond Trader completes full Cycom of mining operations. Owner announces on Warp Ripple Report that he is having a "Diamond Sale."

Cycom 3 – Other empires hype their economies by purchasing and reselling diamonds. The purchase and resale is all done on year 1 of Cycom 3.

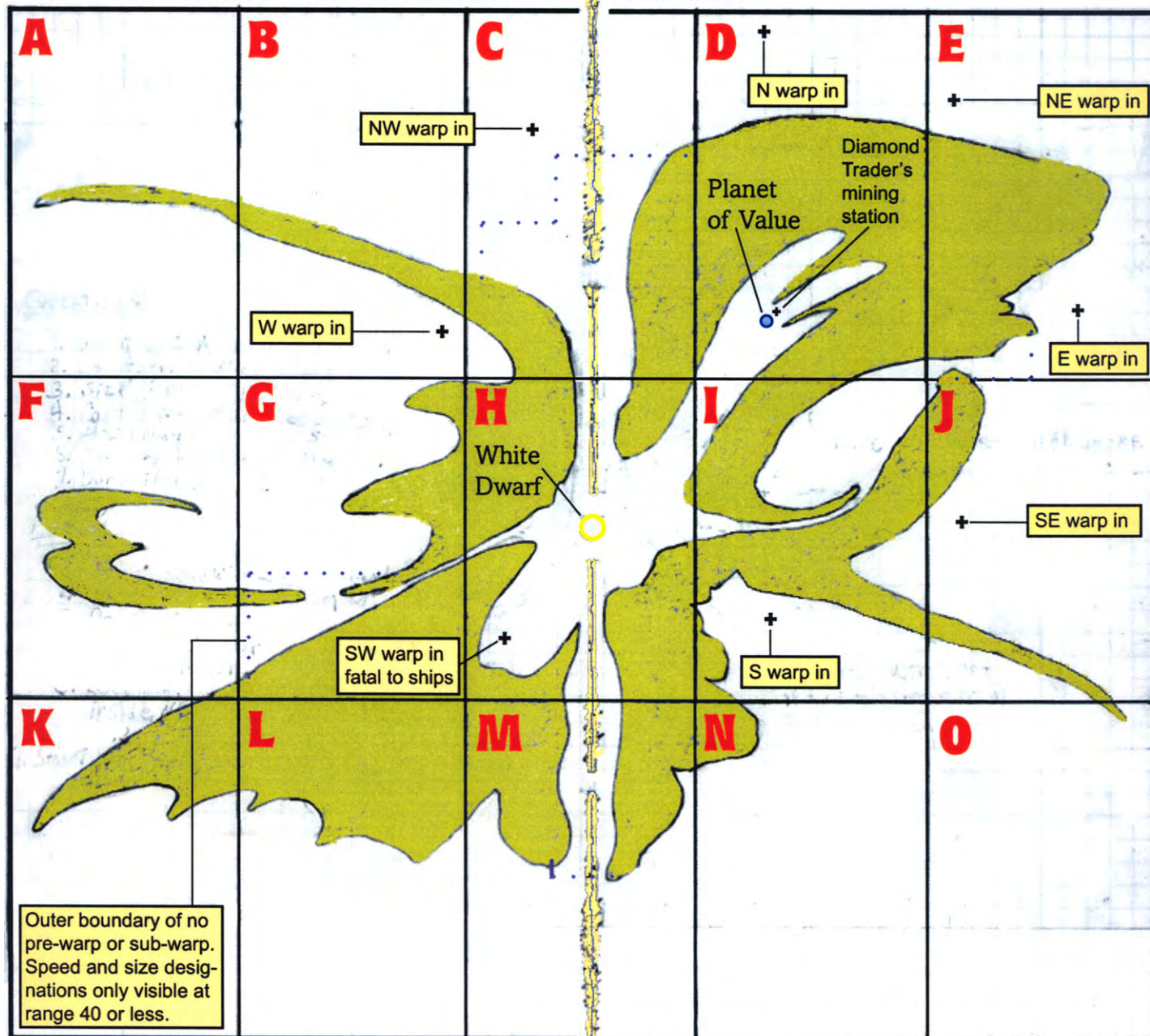
There is only 1 exploding star in the game. The location will not necessarily be equidistant to all players. Only 1 Diamond Trader at a time may operate at the exploding star because opposing Diamond Traders are virulently hostile to the idea of having their monopoly broken. The hostility is fed by concerns for oversupply cutting value.

The Diamond Trader's ship can move away from its mining location at full speed even if that first move is a number of moves deep into a battle board confrontation.

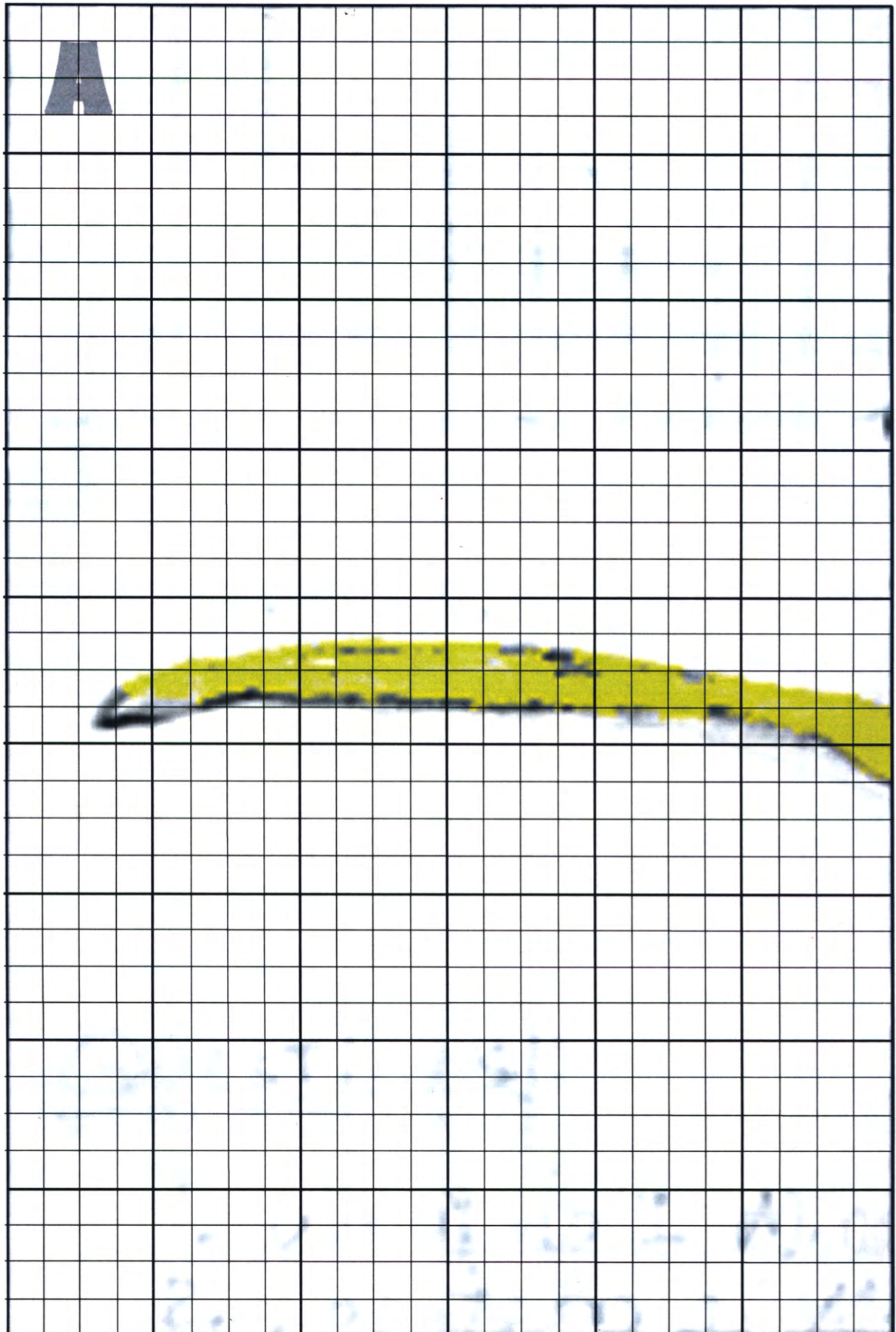
The unusual battle board configuration depicted on the following 16 pages is unique to this TA. Warp in locations are noted on the battle board. Warp out or use of the TA-800 series of Sub-Warp Drive cannot be conducted anywhere within the open areas of the internal structure of the billowing gas. These areas are delineated by blue dotted lines on the battle board. Additionally, opposing ships do not exchange size or speed designations if 1 or both ships are within the blue dotted line boundary until they are within range 40 of each other. Movement is visible to any distance. Count range *around* gas clouds and jets.

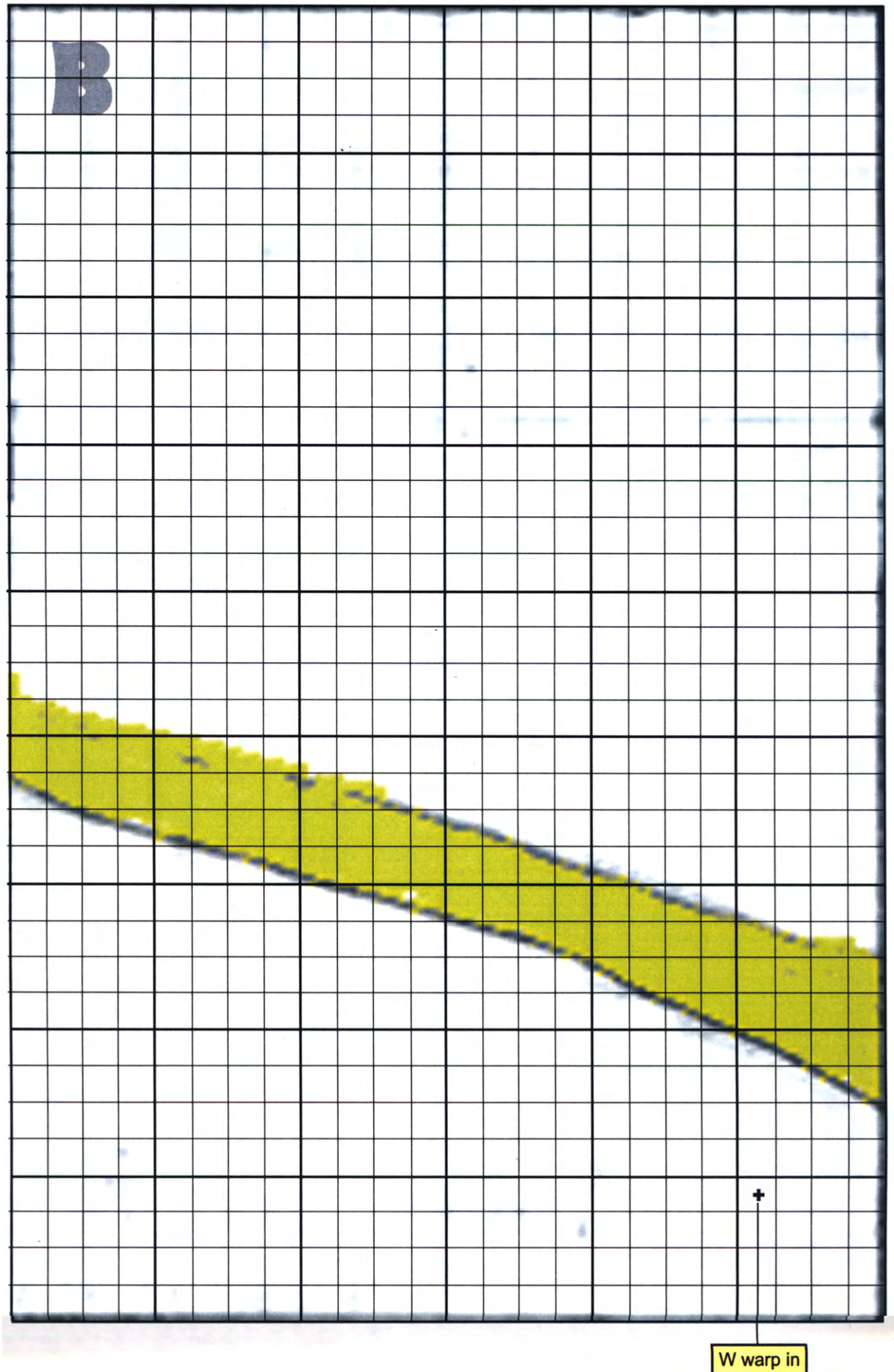
Warp ins are visible to all ships. A ship that has the misfortune of warping in from the SW will be destroyed. Use TA-397 series of Fleet Formation Keeper (p.233) to avoid this fate.

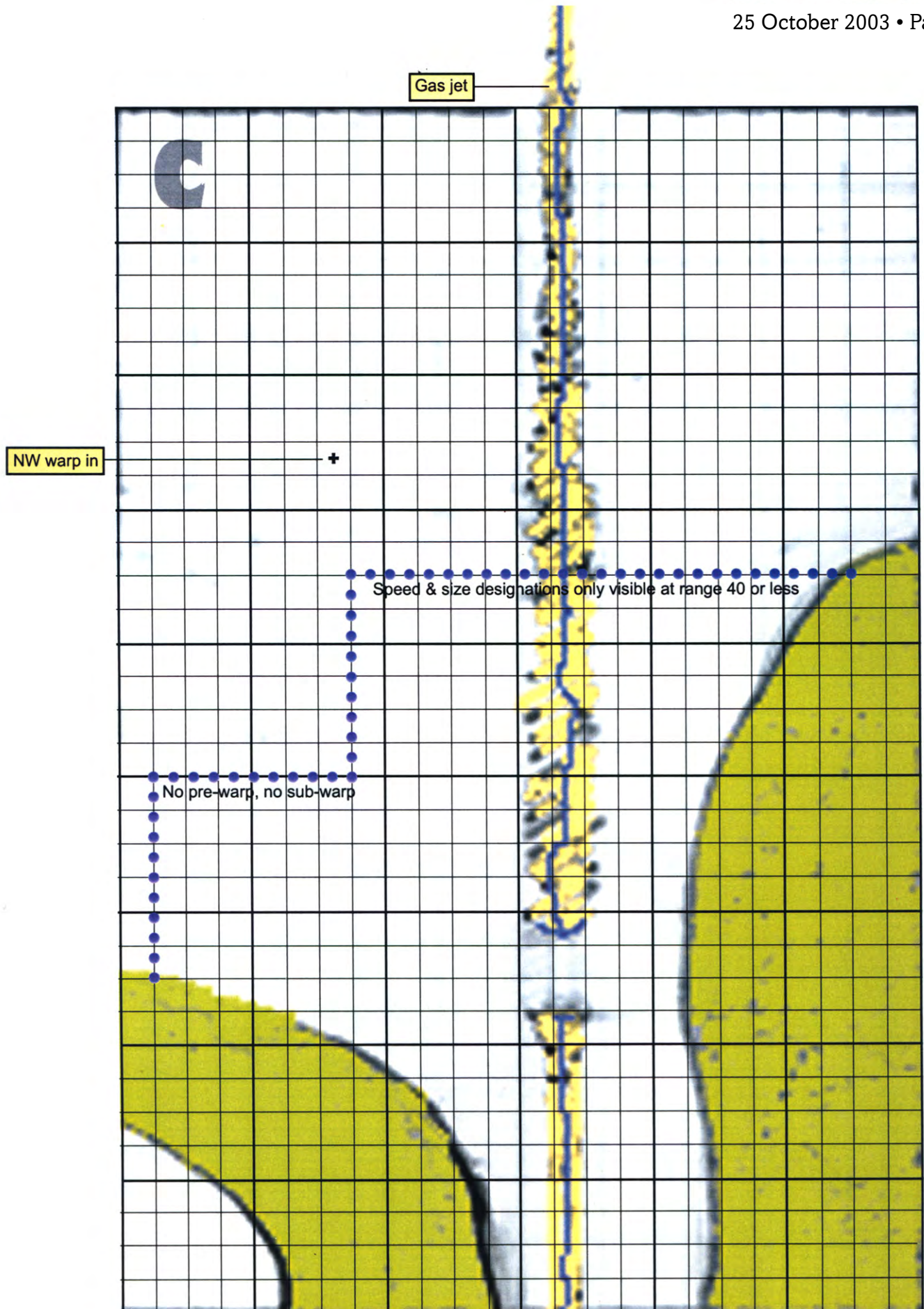
Diamond Trader Battle Board

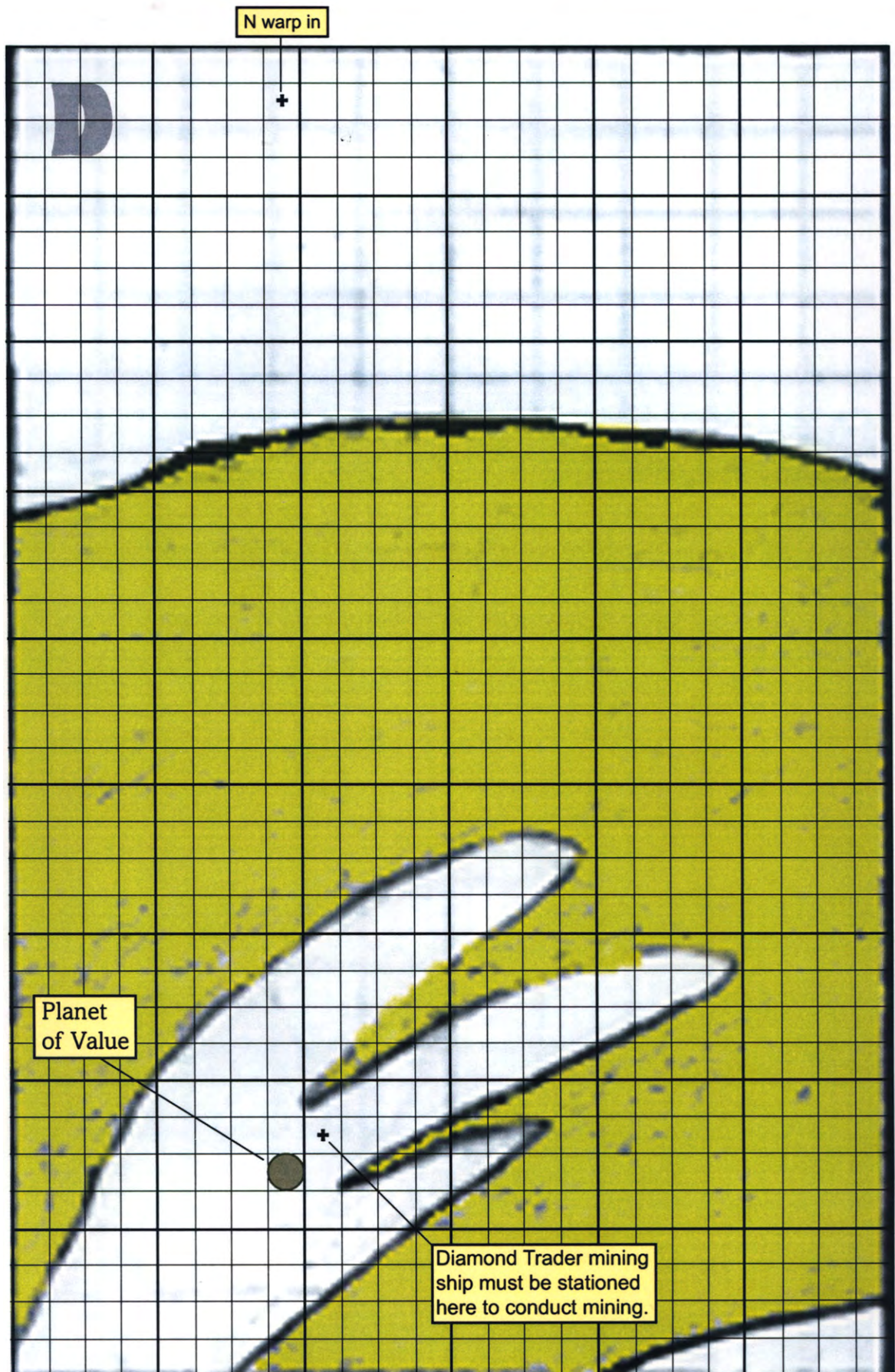


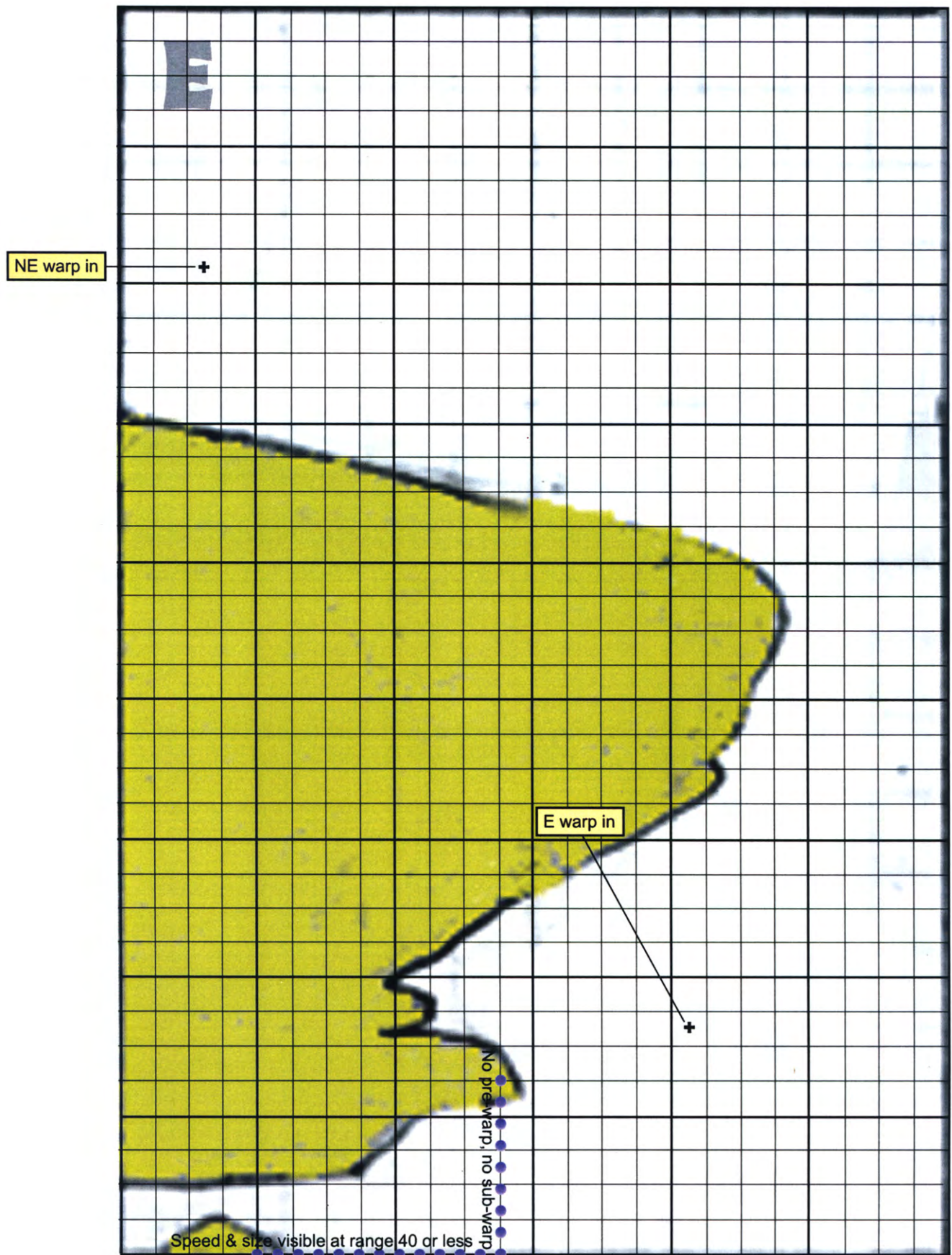
Overall view of the battle board used with TA-230 Diamond Trader. Battle takes place on the full-size battle board, which is comprised of 15 drawings that must be fit together to form a whole. The lettered drawings are of identical size despite the sketch above indicating size variations.

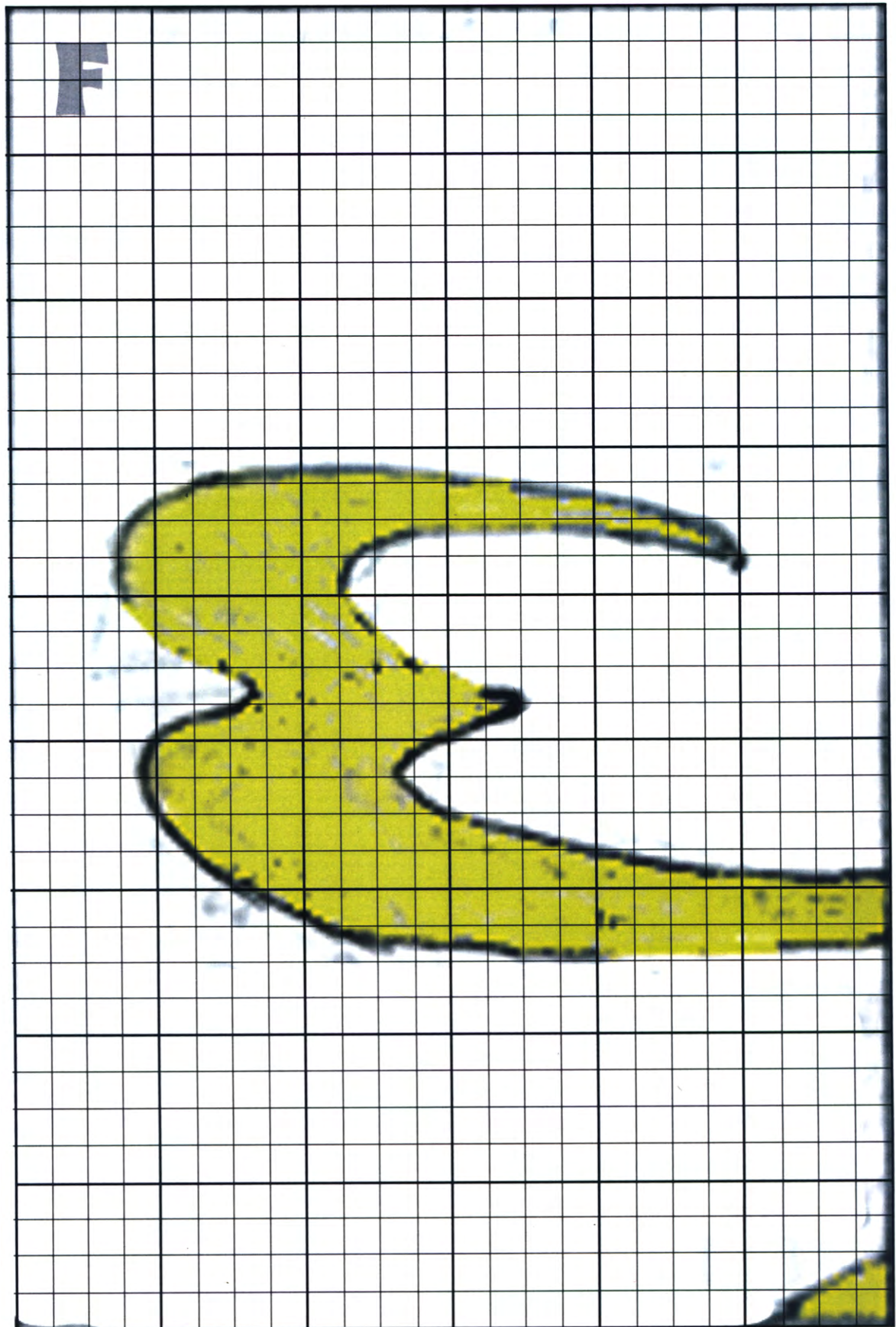


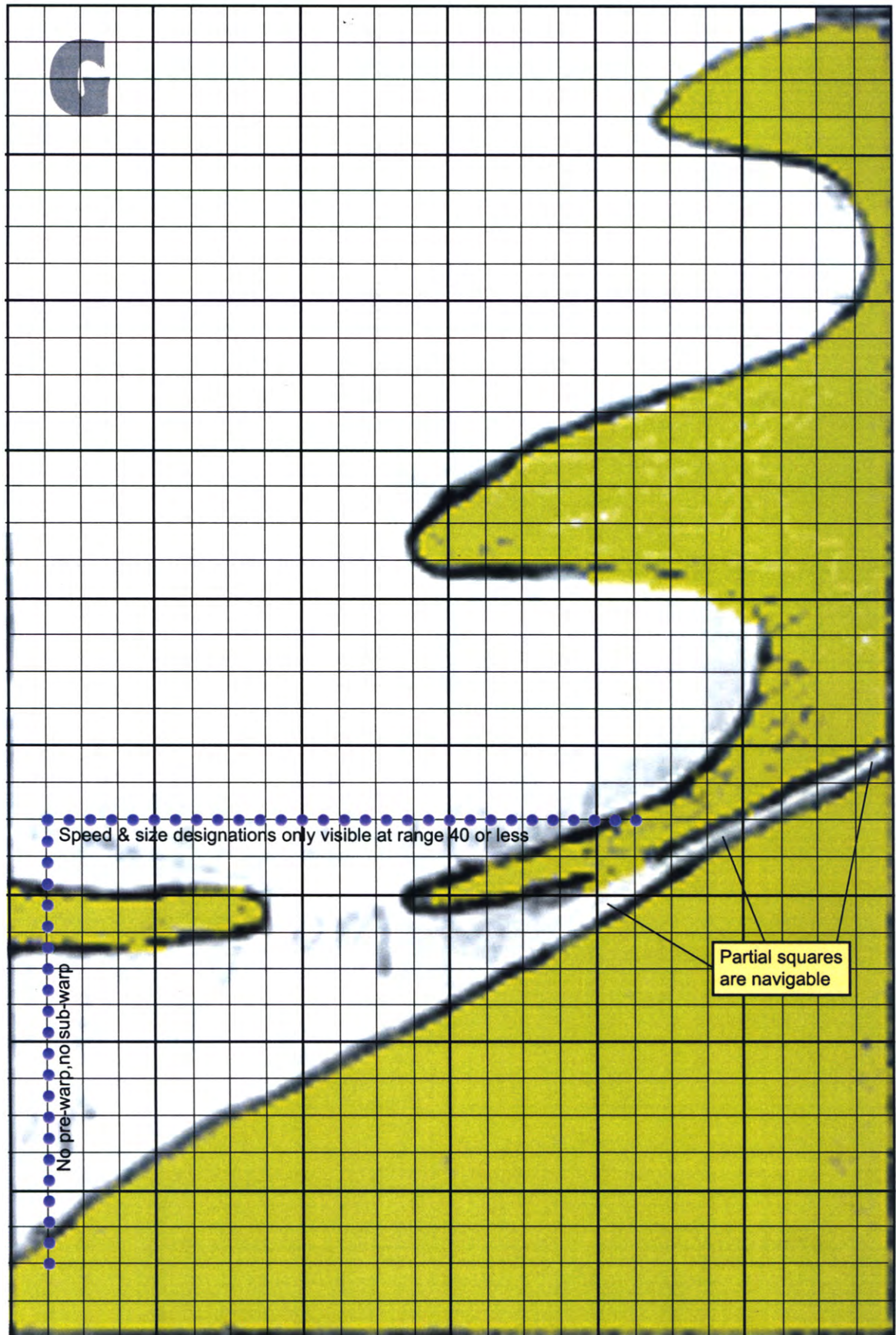




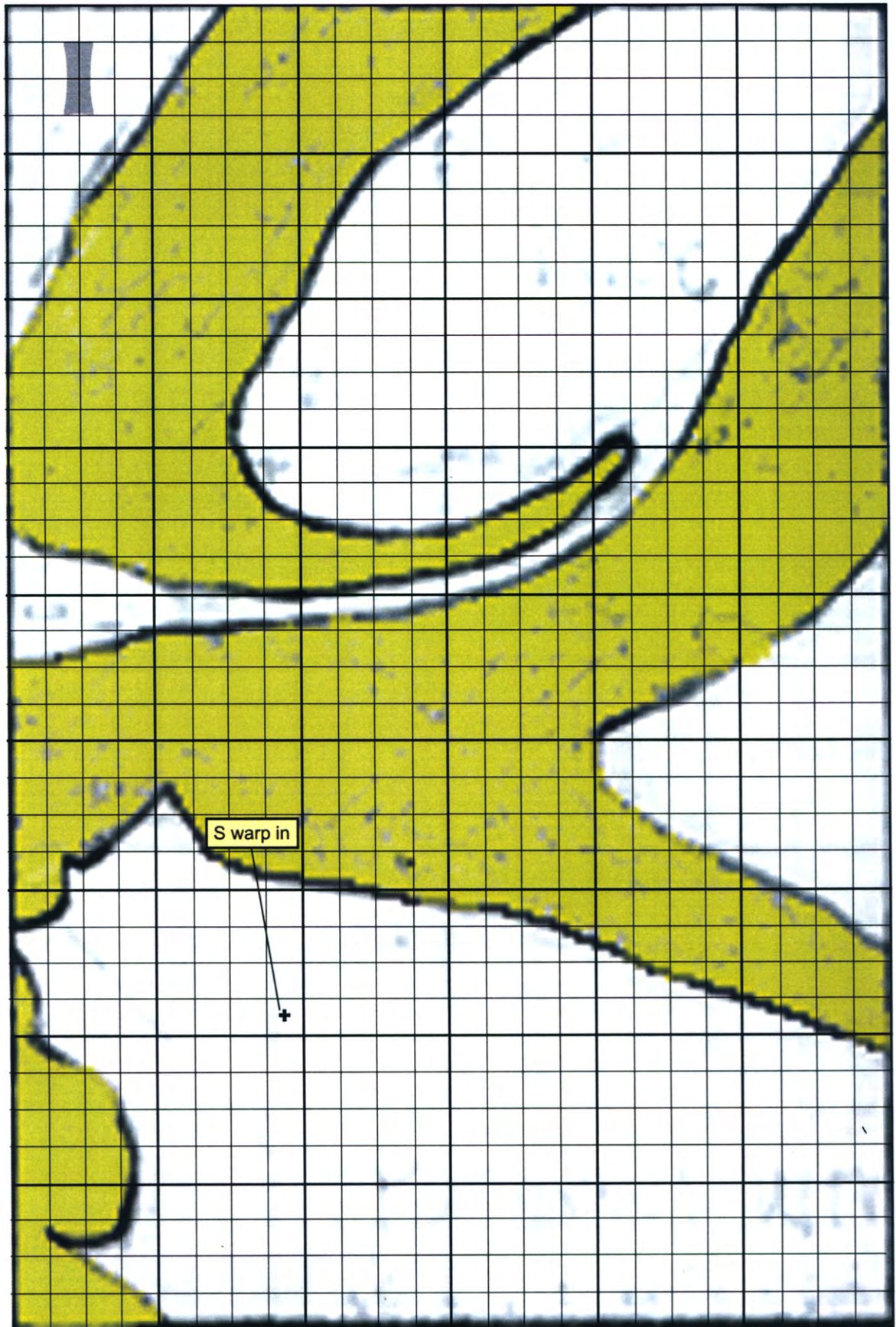


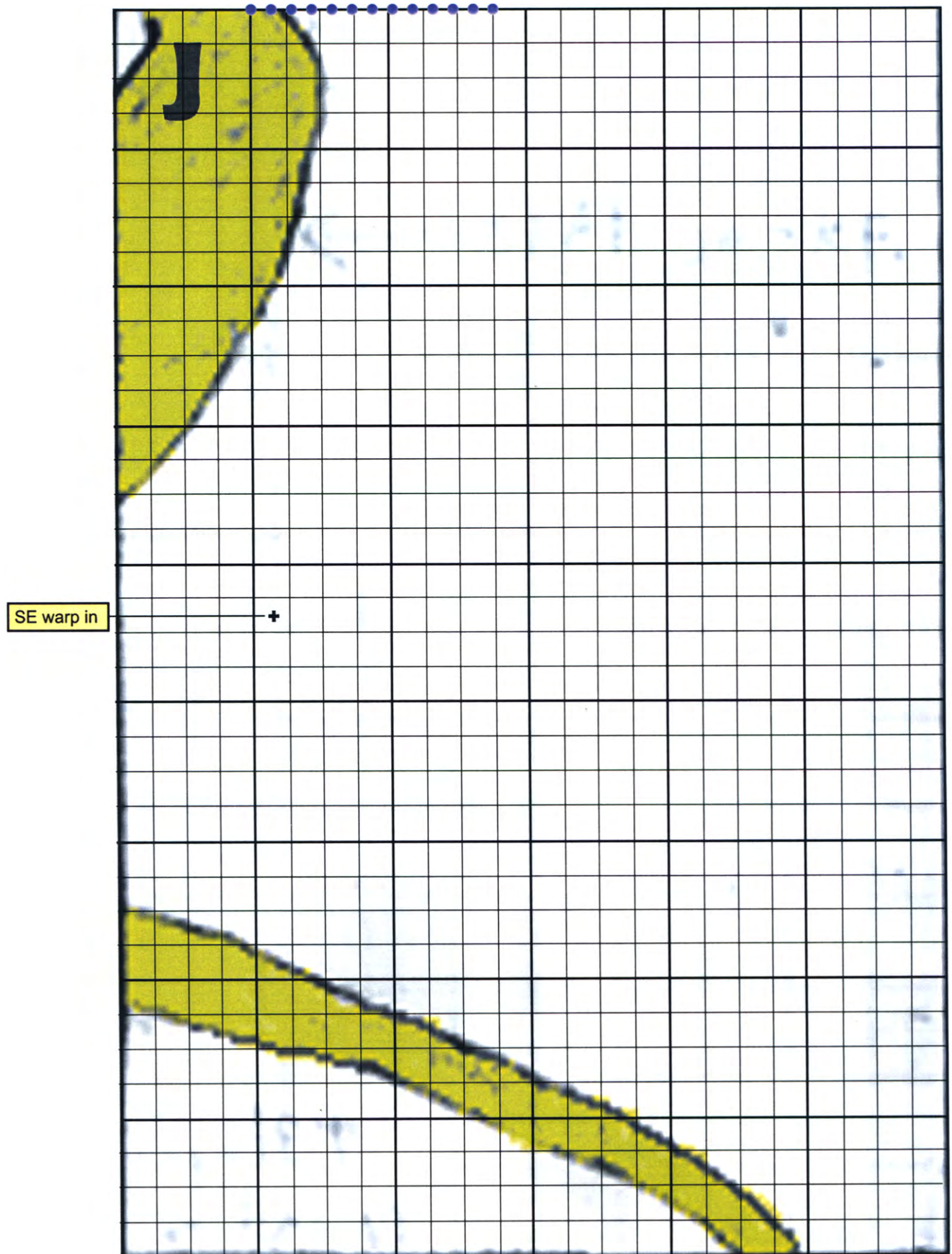


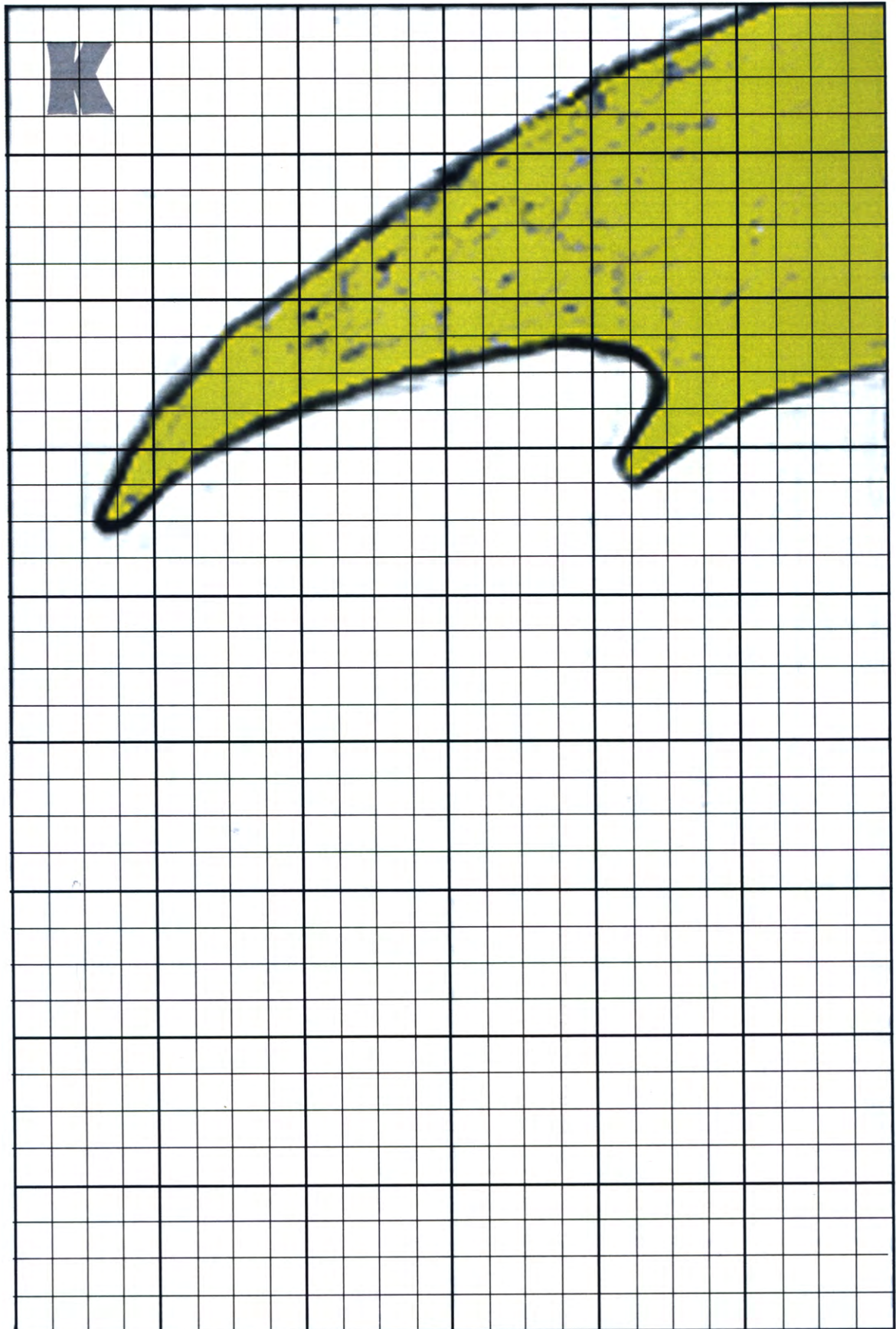


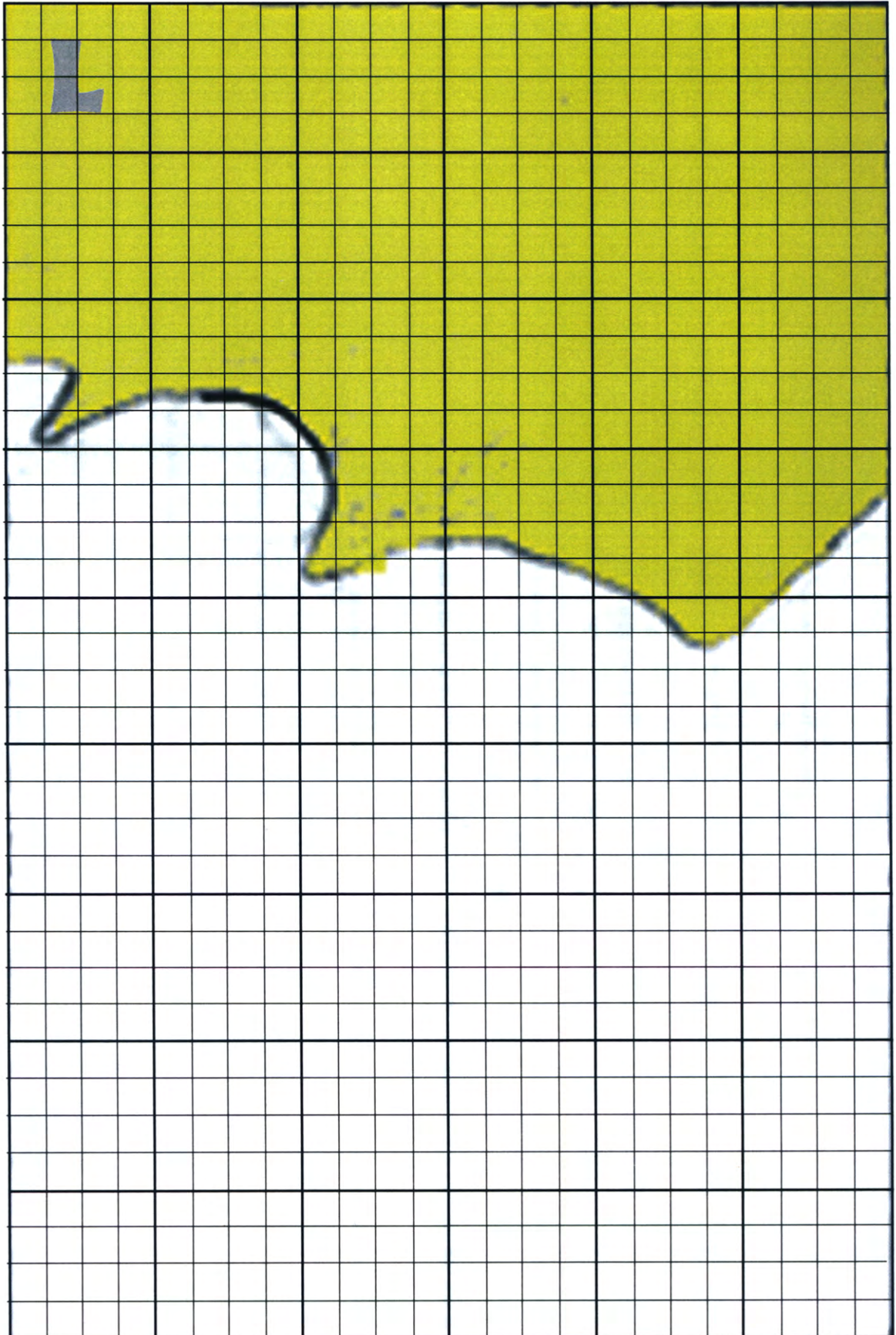


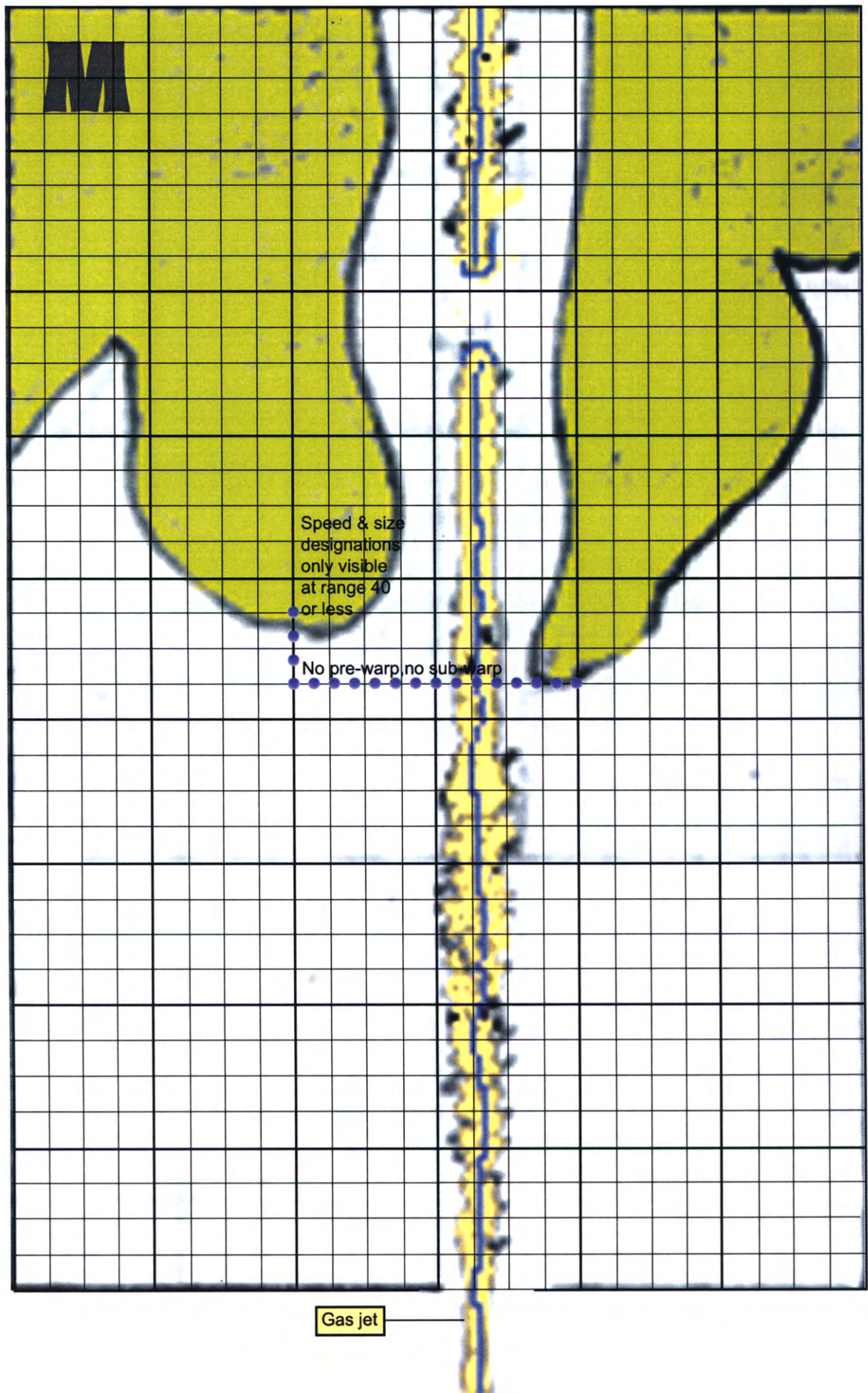


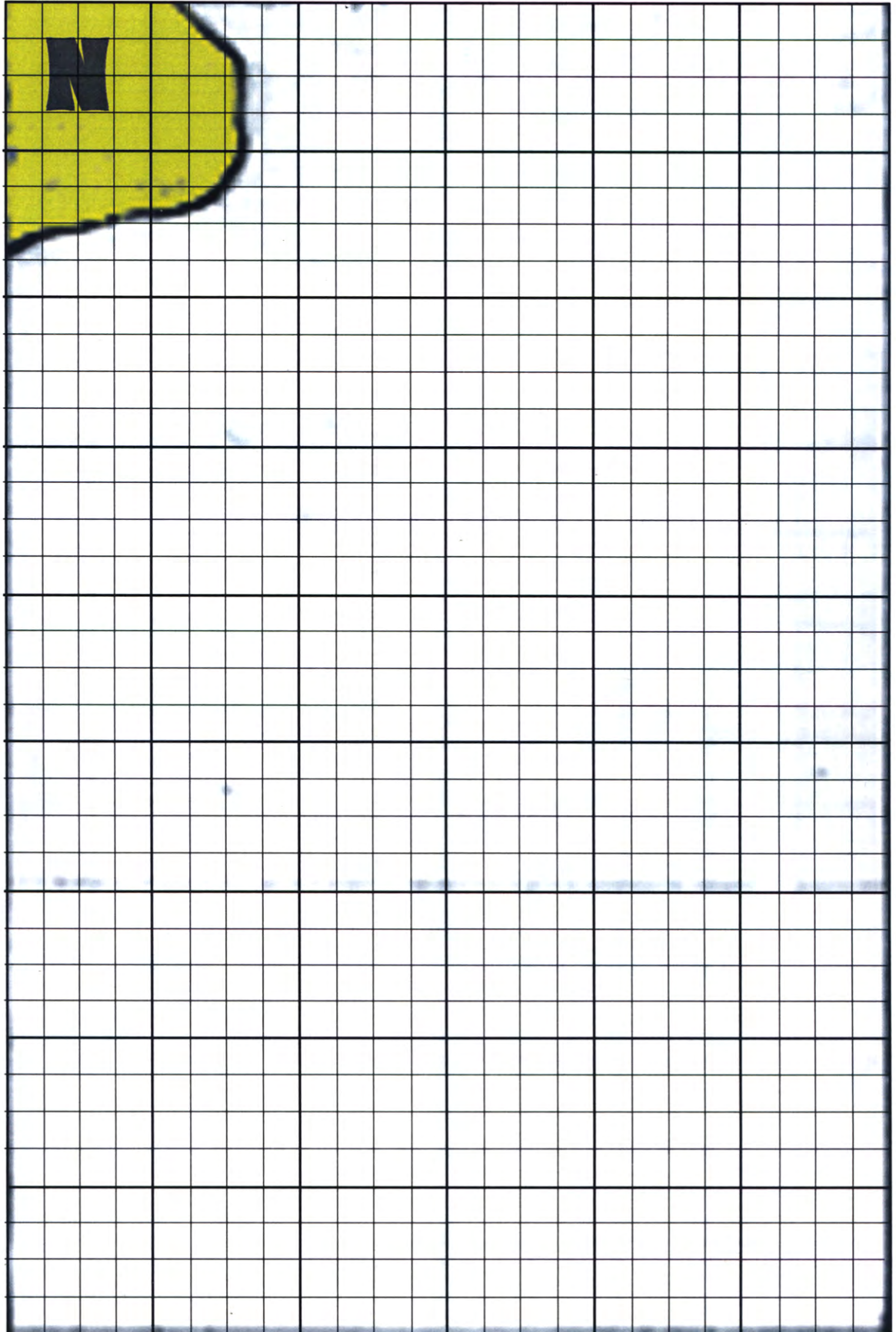


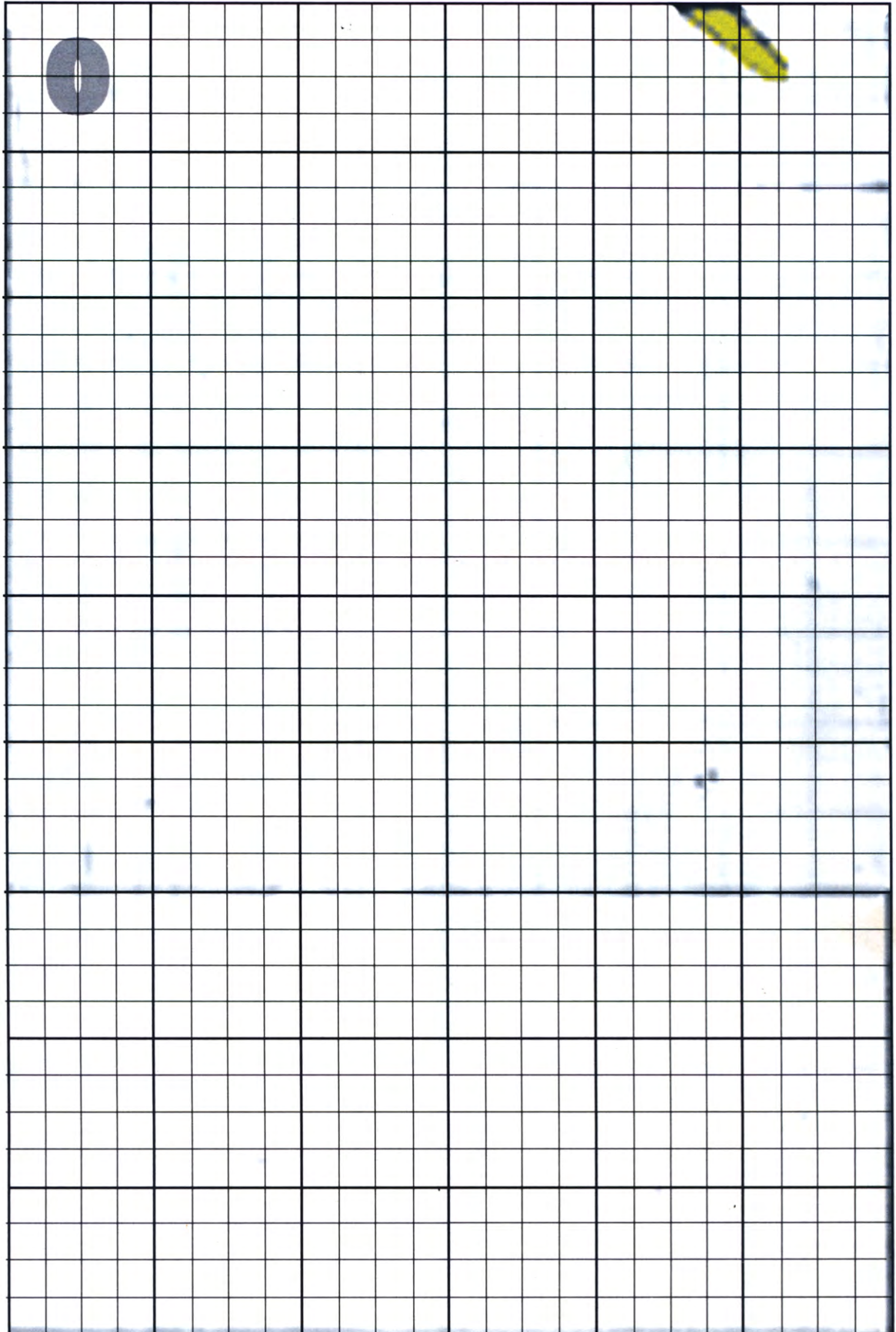












TA-240 Extreme Deification and Exploitation of Nirvana

Descriptive: The Extreme Deification and Exploitation of Nirvana (Eden Project) is conducted by a specially equipped Alpha Class Cargo Ship that hypes the development of the planet of value at an uncolonized Main Sequence star to production extremes hitherto unknown to sentient life.

Designation: EDEN as 6/EDEN.3, 4/EDEN.2, etc.

Prerequisite: None

Development Cost: 4 MT

Item Cost: Same as an Alpha Class Cargo Ship (p.130) plus 64 MT for cargo of 4 GU.

When inoperable: When ship is hulked or destroyed

Narrative: An EDEN ship must be stationed at an uncolonized Main Sequence star during an entire Cycom (cannot warp in or out). Upon arrival, the EDEN ship unloads its cargo of 4 GU on the planet of value. These GU cannot be recovered. Each Cycom the EDEN ratchets up MT/year production until eventually a revolt ensues.

When	Total Output per Cycom
Arrival Cycom	0-MT (normal warp ripple report made, page 71)
1st Cycom	0-MT
2nd Cycom	1-MT/year – 4 MT
3rd Cycom	2-MT/year – 8 MT
4th Cycom	4-MT/year – 16 MT
5th Cycom	8-MT/year – 32 MT
6th Cycom	16-MT/year – 64 MT
7th Cycom	32-MT/year – 128 MT
8th Cycom	32-MT/year – 128 MT
9th Cycom	32-MT/year – 128 MT
10th Cycom, etc.	Planet revolts; location of EDEN project announced to all other empires at the end of every Cycom; production remains stable at 32-MT/year or 128-MT/Cycom.

An empire may build no more than 4 EDENs at a time because the powerful environmentalist political faction will overthrow your government if you despoil more than 4 pristine planets at a time.

If an EDEN is destroyed or departs the planet it is hyping, the planet drops to zero production at the end of the current Cycom. An EDEN can end 1 project, load a new batch of the 4 GU required, and start again at another location with the same results as described in the chart above. The first batch of 4 GU cannot be recovered.

A w for worthless should be placed by the Main Sequence star's symbol after an EDEN has operated for 10 Cycoms at that star. The placement of the w must be reported to all other empires in the game. A Main Sequence star with a w cannot be used for another Eden Project, nor can it be colonized with GU. The star is worthless even as the original Eden Project continues producing 32-MT/year (128-MT/Cycom) until operations cease. It is possible that an Eden Project could continue producing until the end of a game, even though addition of the w to the star's designation is fair warning to all other players that there is an ongoing Eden Project.

TA-250 Mark I Dimwit**TA-251 Mark II Microwit****TA-252 Mark III Nitwit, and TA-253 Mark IV Halfwit****Archaeological Resurrection
of Extinct-Culture Sciences**

Descriptive: The Archaeological Resurrection of Extinct-Culture Sciences are specially equipped ships manned with wacky archaeologists and lunatic scientists of questionable political beliefs and unreliable social skills. These teams, hereinafter referred to as Dimwits, will dig around in the detritus of lost cultures found on planets that orbit some White and Red Dwarf stars. Dimwits work only while looking at the business end of a howitzer. They produce science yen (¥) that only can be used to purchase TAs.

Designation: Mark I: as in 4/E.22sd|di, which earns ¥1 per year or ¥4 per Cycom
 Mark II: as in 4/D.22sd|mi, which earns ¥2 per year or ¥8 per Cycom
 Mark III: as in 4/C.22sd|ni, which earns ¥3 per year or ¥12 per Cycom
 Mark IV: as in 4/B.22sd|hi, which earns ¥4 per year or ¥16 per Cycom

Prerequisite: TA-110 Super Deflector, p.165, which must be mounted on the merchant

Development Cost: Mark I: 96 MT	Must be developed in sequence
Mark II: 32 MT	
Mark III: 32 MT	
Mark IV: 32 MT	

Item Cost: Mark I: 32 MT plus cost of 4/E and escort with 5 or more long guns
 Mark II: 64 MT plus cost of 4/D and escort with 6 or more long guns
 Mark III: 96 MT plus cost of 4/C and escort with 7 or more long guns
 Mark IV: 128 MT plus cost of 4/B and escort with 9 or more long guns

When inoperable: The merchant ship carrying the team can be captured or destroyed, but only after the armed escort flees to range 100+ from the Dimwit or is destroyed. If captured, the Dimwits will begin producing ¥ the following Cycom for the capturing player. The Dimwit merchant is landed on the planet of value while working, but cannot be abandoned and blown up as can other landed ships.

Narrative: Dimwits generate science revenue, called yen or ¥ (option-y), that is placed in a separate account at the IMLO Bank. The ¥ can be used to purchase TAs that fall sequentially immediately after those already developed or under development by an empire. The cost of these TAs is normal and does not depend upon the number of TAs developed by other means; i.e., a ¥-purchased TA will sometimes be the fourth TA purchased in a Cycom. Cost of ¥-purchased TAs is always normal; ¥1 = 1 MT. TAs purchased normally are unaffected as to cost by the ¥ purchase of a TA. A TA must be wholly paid in ¥or MT.

A player may operate multiple teams. Teams may be of different marks. Production of ¥ from all sources can never exceed ¥20 per Cycom. Can mine as less than full capacity.

The amount of ¥ earned each *full* Cycom of operations is listed with the Designation entry, above. Ship enters star any year of Cycom 1; production of ¥ begins Cycom 2. The Dimwits only can operate at even-numbered White or Red Dwarf stars, p.69.

The amount of ¥ available to an empire at the end of each Cycom is reported by an empire in the lower right-hand side of the Warp Ripple Report. Expenditures of ¥ are recorded at the top of the Expenses Chart, p.94, which is completed by players each Cycom.

Early marks of Dimwit can be upgraded to later marks by paying the cost difference. The host ship can be upgraded using TA-81 Size Upgrade Capability, p.161, although it would be cheaper just to provide a larger ship. Upgrades are conducted by landing the host ship(s) on the planet of value at a production center star for 1 Cycom. In all upgrade cases, a larger escorting warship must be provided.

TA-260 Research University

Descriptive: A Research University is established to conduct scientific research. The research yields discoveries that improve an empire's economy or produce new or improved weapons systems. The scientists and professors that provide the necessary brainpower are a notably cantankerous lot with questionable loyalties.

Designation: RU

Prerequisite: TA-253 Mark IV Halfwit

Development Cost: 64 MT

Item Cost: 200 MT

When inoperable: An RU is destroyed when the production center at which it is located is neutralized or captured by an enemy empire.

Narrative: A Research University generates science revenue, called yen or ¥ (option-y), that is placed in a separate account at the IMLO Bank. The ¥ can be used to purchase TAs that fall sequentially immediately after those already developed or under development by an empire. The cost of these TAs is normal and does not depend upon the number of TAs developed by other means; i.e., a ¥-purchased TA will sometimes be the fourth TA purchased in a Cycom. Cost of ¥-purchased TAs is always normal; ¥1 = 1 MT. TAs purchased normally are unaffected as to cost by the ¥ purchase of a TA. No more than 1 TA per Cycom may be purchased using ¥.

A player may establish as many as 5 RU. Each RU must be at a different production center star that has 10 or more FY. The production center must be at a Main Sequence star.

The amount of ¥ earned each *full* Cycom of operations by each RU is ¥1 per year, or ¥4 per Cycom. Production of ¥ from all sources can never exceed ¥20 per Cycom. The amount of ¥ produced is cut in half during the Cycom a Plague Planet penalty is being paid. However, no TAs may be developed during a Cycom in which a Plague penalty is being paid.

The amount of ¥ available to an empire at the end of each Cycom is reported by an empire in the lower right-hand side of the Warp Ripple Report. Expenditures of ¥ are recorded at the top of the Expenses Chart, p.94, which is completed by players each Cycom.

TA-270 Repair Ship & Repair Ship, Heavy

Descriptive: The Repair Ship repairs damaged or hulked ships.

Designation: RS as in 4/RS.23ad|rd|md|hd, etc.

RSH as in 7/RSH.24sd, etc.

Prerequisite: None

Development Cost: 32 MT

Item Cost: RS – Same as a D Class Cargo Ship (p.130).

RSH – Same as a B Class Cargo Ship (p.130)

When inoperable: With any damage. Must repair itself before it can repair others.

Narrative: An RS can repair 1 ship per year, regardless of size. The RSH can repair 3 ships per year, regardless of size. Cost and methodology of repairs are described on page 136. Repairs may be done at a star (planet of value) or in deep space. An RS or RSH can repair itself, even if hulked. All TAs are also repaired. Expendable ordnance is restocked for free, but only on damaged ships undergoing repairs.

Defer cost to next Cycom for repairs conducted the same Cycom damage was taken.

An RS (or production center star) are required to remove and remount a TA from a captured ship to another ship for transport of that TA to another location. The captured TA will be non-operational after remounting. It must be remounted on a ship of suitable size. No time required for remounting.

If at a star, neither the Repair Ship nor the ship under repair can move or use guns/defense or offensive TAs. Defensive TAs such as deflectors may be used.

A ship undergoing repairs may be destroyed by common explosives set by the Repair Ship because the crew is assumed on board the RS/RSH.

The RS and RSH behave like a merchant ship in that it will automatically surrender to any enemy warship carrying 1 or more guns and of equal or superior speed that succeeds in closing within gun range 10. This applies only if the defenseless ship is unprotected on the battle board by any friendly ship able and willing to attack the enemy.

TA-271 Repair/TA-Upgrade Ship

Descriptive: The Repair/TA-Upgrade Ship repairs damaged or hulked ships. More importantly, it is also capable of upgrading all TAs on a ship to the latest mark.

Designation: RSU as in 8/RSU.24ad|rd|md|hd

Prerequisite: TA-270 Repair Ship

Development Cost: 128 MT

Item Cost: Same as a B Class Cargo Ship (p.130).

When inoperable: With any damage. Must repair itself before it can repair others or upgrade TAs.

Narrative: Same as the TA-270 Repair Ship (RS only) except that the RSU also upgrades all TAs on a ship to the latest mark. Upgrading TAs is free, except that the cost *difference*, if any, between the old mark of TA and the new mark must be paid immediately from an empire's IMLO Bank account. There is no rebate for a later mark that is cheaper than an earlier mark. The RSU cannot replace TAs that can't be upgraded.

The RSU cannot junk anything or install new TAs, but it can remount captured TAs.

A ship must warp into and out of the location of an RSU, after which all TAs are considered upgraded to the latest mark, unless remaining with an earlier mark is desired. No stopping time is required.

TA-280 Q Ship

Descriptive: The Q Ship looks like a merchant vessel but carries guns and TAs. It always gets off one surprise salvo (guns only) at an enemy warship. It also carries cargo.

Designation: Q as in QA (Q Heavy Battlecruiser), QB (Q Heavy Cruiser) or QC (Q Destroyer). The Q part of the designation is not visible to the enemy, who thinks the ship is a large merchant.

Prerequisite: None

Development Cost: 8 MT

Item Cost: See chart below. Warp drive is unlimited for all sizes.

Designation	Name	No. of Guns	Gun Range	Cargo Capacity	Speed vs. MT Cost					Base 1 Cost
					8	7	6	5	4	
QA	Q Ship A	12	40	6 GU	410	320	256	218	192	128
QB	Q Ship B	8	40	4 GU	294	230	184	156	138	92
QC	Q Ship C	4	40	2 GU	176	138	110	94	83	55
Cost Multiple vs. Speed:					3.2	2.5	2	1.7	1.5	1

When inoperable: The Q function is revealed after 1 salvo is fired. The ship itself is hulked or destroyed normally. The identity of the Q Ship is apparent if the Q Ship has damage. Aggressive tactics that make the nature of the Q Ship suspicious or obvious do not negate the Q Ship's surprise salvo capability.

Narrative: The primary advantage of the Q Ship is that it looks like a merchant ship, and even carries cargo, but it also carries guns and TAs appropriate to its gun size. See chart below. The Q Ship will get off one surprise salvo (guns only) that cannot be answered by the target. The ship is fought normally after the surprise salvo.

The sequence of moves on the battle board for a Q Ship is as follows:

1. Q Ship and target both move
2. Q Ship fires surprise salvo. Target's gunfire directed at the Q Ship goes awry. Gunfire from any other ship at the Q Ship also goes awry. Target ship's gunfire at other ships is unaffected. Target ship's defense functions normally. Target's TA weaponry, such as torpedoes, for example, function normally.
3. Q Ship and target both move
4. Q Ship and target fire at each other normally. Other ships firing at a Q Ship also fire normally.

The surprised warship may not open fire at the Q Ship until the Q Ship gets one broadside off. This does not preclude the warship opening fire at any time it wishes in an effort to destroy the "merchant," but if the Q Ship is the first to open fire, or if it opens fire simultaneously, the target cannot fire effectively at the Q Ship until the next turn.

The Q Ship cannot behave like a warship and maneuver aggressively in the face of enemy warships and still get off a free shot. It must act like a helpless merchant attempting to flee.

TA-281 Armed Merchant Ship

Descriptive: An Armed Merchant Ship looks like a merchant vessel but carries guns and TAs in addition to cargo. The cost of the ship is equal to the full cost of an equivalent merchant ship plus half the cost of an equivalent warship.

Designation: X as in XAA, XA, XB, XC, XD or XE. Designation is visible to an enemy.

Prerequisite: None

Development Cost: 8 MT

Item Cost: See chart below. All sizes have unlimited warp drive.

When inoperable: When the ship is hulked or destroyed.

Narrative: The primary advantage of the Armed Merchant Ship is that it carries guns and TAs appropriate to the number of guns carried by an equivalent warship. This prevents small wandering predators from capturing the merchant without a fight.

The short-range guns have a range of 20 and fire at double strength (3 guns = 6). Defense is normal.

Designation	Name	No. of Guns	Gun Range	Cargo Capacity	Speed vs. MT Cost					Base 1 Cost
					8	7	6	5	4	
XAA	Armed Merch. AA	7	40	18 GU	566	444	354	300	266	175
XA	Armed Merch. A	6	40	13 GU	490	383	306	260	230	153
XB	Armed Merch. B	5	40	9 GU	388	302	242	208	182	121
XC	Armed Merch. C	5	20	5 GU	272	212	170	144	128	85
XD	Armed Merch. D	4	20	2 GU	170	133	106	90	80	53
XE	Armed Merch. E	3	20	1 GU	134	88	70	60	52	35

TA-288 Caravelle

Descriptive: The LL is an unarmed 10-speed E Class merchant ship built at reduced cost by using a limited crew and providing barely habitable quarters for the disposable clones that make up the crew. The ship is used in high-risk areas. "Caravelle" is a Medieval French variant of the more commonly spelled Carvel or Caravel.

Designation: LL as in 10/LL.53sd, 10/LL.17, etc.

Prerequisite: TA-323 Warp Speed 10, p.212

Development Cost: 4 MT

Item Cost: 130 MT

When inoperable: When destroyed or captured.

Narrative: The Caravelle is a 10-speed merchant ship that has 1 GU cargo capacity. Except for the high speed and reduced cost, it is identical to any other E-Class merchant.

TA-290 Tow Ship

Descriptive: The Tow Ship is a smallish ship with a powerful warp drive that can drag around hulked, damaged or undamaged ships up to and including the Z Super Dreadnought of 18 guns (p.131) and the AA Class Cargo Ship (p.130). The Tow Ship uses a powerful but very short-range gravity beam that locks another ship to its side.

Designation: TS as in 4/TS.12, 4/TS.2, 4/TS.77ad|rd|md|hd, etc.

Prerequisite: TA-390 Mark I Tractor Beam, p.231

Development Cost: 16 MT

Item Cost: 50 MT. Warp drive is unlimited.

When inoperable: When destroyed.

Narrative: Tow Ships are designed for towing of disabled ships, TA-291 Unpowered Cargo Barges (below), TA-421 Suicide Moon Fortress (p.240) or TA-377 series of Heliostatic Hellfire Machines (p.226). A ship under tow cannot use any of its weapons remaining while under tow. The TS always moves at speed 4 unless a slower speed is temporarily required.

A Tow Ship moves to the same battle board square as the ship to be towed, spends 1 battle board move traveling with the ship to be towed, and then moves away with the towed ship. The TS uses its own warp drive engines to move the towed ship. The towed ship may be detached at any time, even in mid-battle board move. The detached ship will continue to travel on the battle board at the speed and in the direction it was traveling when it was dropped. An enemy ship must be hulked or have lost all engines before it can be towed. A ship to be towed must be moving at speed 4 or less on the battle board, which may mean the TS cannot tow a ship until it goes into geosynchronous orbit the next year.

The Tow Ship has no guns. The TAs a TS can mount are limited to Group III Deflectors.

The TS behaves like a merchant ship in that it will automatically surrender to any enemy warship carrying 1 or more guns and of equal or superior speed that succeeds in closing within gun range 10. This applies only if the defenseless ship is unprotected on the battle board by any friendly ship able and willing to attack the enemy.

TA-291 Unpowered Cargo Barge

Descriptive: The Unpowered Cargo Barge is used to transport GU inexpensively.

Designation: UCB as in UCB.1, UCB.2, etc.

Prerequisite: TA-290 Tow Ship

Development Cost: 4 MT

Item Cost: 50 MT

When inoperable: When destroyed.

Narrative: The UCB can accomodate 16 GU or FY. These GU or FY can be unloaded with no time delay onto a powered merchant ship (p.130) either at a star or in deep space. The merchant ship can then use the GU or FY. The UCB does not need the presence of a powered merchant ship to load cargo at a production center star or at a TA-296 Goodie Unit Factory Facility (GUFF) (p.204).

The UCB can be destroyed or abandoned at will if it is empty. It cannot be destroyed by its owner if it has GU on board.

The UCB cannot carry TAs, it has no weapons or defense and is unpowered. Any deflector TAs carried by the TS also protect the UCB.

TA-292 Goodie Unit Cargo Shuttle

Descriptive: Enables a cargo ship to shuttle Goodie Units or Factories to or from the surface of a planet of value from a standoff position on the battle board.

Designation: gus as in 8/A.22gus, 6/E.13gus, 7/C.7gus⁴, etc. (the superscript ⁴ on 7/B.7gus⁴ indicates the number of gus carried by that ship – not used if only 1 gus carried)

Prerequisite: None.

Development Cost: 8 MT

Item Cost: 8 MT. May be on any size or type of merchant ship. Number carried may not exceed GU capacity. Must be installed at a production center star.

When inoperable: When mother ship is hulked or destroyed. A gus is destroyed by 1 gun or torpedo fired at it or by abandonment for 1 year. Can be junked.

Narrative: A merchant ship of any type carrying a gus warps onto the battle board to colonize an enemy's planet of value. Instead of moving to the planet to drop off GU or FY, the mother ship retreats to a distance of 400 and uses the shuttle to ferry 1 GU or FY at a time to or from the planet's surface. A gus can load or unload cargo from an accompanying merchant or from TA-291 Upowered Cargo Barge (p.202) that cannot have a gus.

The gus itself does not have warp drive.

The danger posed by enemy ships equipped with the TA-600 series of Ambush Drive (p.306) lying in ambush below a planet's or moon's surface makes this TA useful later in a game. The gus is not entirely effective against a fast warship that combines an advanced mark of TA-800 series Sub-Warp Drive and any mark of ambush drive. Such a ship will leap from ambush, enter sub-warp, close on the merchant, leave sub-warp and destroy the target. The attacker may chose to do this even in the face of a strong force defending the merchant.

TA-293 Giant Merchant

Descriptive: There will come a time when a Giant Merchant ship will be necessary.

Designation: XL or VL as in 6/XL.220sd, 8/VL.137gus, 7/XL.53sd/gus, etc.

Prerequisite: TA-320 Warp Speed 7 and TA-321 Warp Speed 8 (p.212) as needed.

Development Cost: 4 MT

Item Cost: See chart below. Warp drive is unlimited.

When inoperable: It'll surrender or be destroyed like any other merchant, p.136.

Narrative: The Giant Merchant ships have a cargo capacity of 34 or 68 GU. The huge size brings great cost efficiency vs. capacity.

Designation	Giant Merchants Name	No. of Guns	GU Capacity	Speed vs. MT Cost					Base 1 Cost
				8	7	6	5	4	
XL	Extremely Large Merchant	0	68	820	640	512	435	384	256
VL	Very Large Merchant	0	34	640	500	400	340	300	200
Cost Multiple vs. Speed				3.2	2.5	2	1.7	1.5	1

Merchant Ships may mix cargo of FY, GU, QP, UFY, etc.

TA-295 Stores Replenishment Ship

Descriptive: The Stores Replenishment Ship resupplies a warship with expendable ordnance, such as torpedoes. There are 2 sizes available.

Designation: SRC or SRA as in 4/SRC.23ad|rd|md|hd, 6/SRA.70, etc.

Prerequisite: None

Development Cost: 8 MT

Item Cost: Same as a C Class Cargo Ship for the SRC, p.130

Same as the A Class Cargo Ship for the SRA, p.130

When inoperable: When destroyed.

Narrative: An SRC can restock 1 ship per year with expendable ordnance, regardless of size ship and amount of ordnance required. The SRA can restock 4 ships per year. The ship being restocked merely warps in and out of the deep space location of the SRC or SRA to complete the restocking. The ordnance supplies are free and are included in the initial cost of the ship. The SRC/SRA restocks expendable ordnance to a ship that has used all or part of its stock of expendable ordnance in battle, but will not stock ordnance on a ship that was intentionally built without the ordnance with the illegal intent of using the SRC/SRA for ordnance stocking.

The SRC/SRA never needs to be restocked during the course of the game. The resupply of expendable ordnance to another ship must be done in deep space.

The SRC and SRA have no guns. They may carry deflector TAs. Warp drive is unlimited.

The SRC or SRA behaves like a merchant ship in that it will automatically surrender to any enemy warship carrying 1 or more guns and of equal or superior speed that succeeds in closing within gun range 10. This applies only if the SRC/SRA is unprotected on the battle board by any friendly ship able and willing to attack the enemy.

TA-296 Goodie Unit Factory Facility

Descriptive: The Goodie Unit Factory Facility manufactures Goodie Units.

Designation: GUFF as in 6/GUFF.2, 8/GUFF.11, etc.

Prerequisite: TA-270 Repair Ship

Development Cost: 32 MT

Item Cost: Same as a C Class Cargo Ship plus 10% (p.130). Warp drive is unlimited.

When inoperable: When destroyed.

Narrative: A GUFF can manufacture 1 Goodie Unit (GU) per year, or 4 GU per Cycom. MT are routed to the ship to pay for the GU. Other merchant ships can load GU from the GUFF. The GUFF can never have more than 4 GU stored.

The GUFF must spend a full Cycom in deep space to receive MT and manufacture GU. The ship is free to colonize stars the next Cycom as would a normal C Class merchant. Construction costs are not reported on the Warp Ripple Report.

The GUFF can run away from danger, even if it is involved in GU manufacture. Any stored GU travel with the GUFF. The GUFF is able to colonize Main Sequence stars.

The GUFF behaves like a merchant ship in that it will automatically surrender to any enemy warship carrying 1 or more guns and of equal or superior speed that succeeds in closing within gun range 10. This applies only if the defenseless ship is unprotected on the battle board by any friendly ship able and willing to attack the enemy.

TA-297 0-Gun Spy

Descriptive: The 0-Gun Spy is an unarmed 10-speed ship built at reduced cost by using a 2-clone crew with barely habitable quarters. The “ship” has TA-600xx Ambush Drive, p.306, built in, which provides an extended chase speed margin.

Designation: XX as in 10/XX.53, 10/XX.17, etc.

Prerequisite: TA-323 Warp Speed 10, p.212
 TA-600a Ambush Drive, p.306
 TA-373 Fighter Bay Modules for Merchants, p.225
 or TA-1201 Flying Squadron, p.455

Development Cost: 16 MT

Item Cost: 20 MT.

When inoperable: When destroyed.

Narrative: The 0-Gun Spy is a very small vessel that is used to watch ship movements and construction activities at a hostile production center star.

The ship carries no TAs, but can operate at any type of star (Red Giant, Multiple, Dead Dwarf, etc.). The Spy has built-in TA-600xx Ambush Drive, p.306. The Spy does not have warp drive; it is launched from a parent ship conducting a transit, p.111, of the targeted star.

Launch Module: 2 per fb, p.225, attached to a merchant ship, or
 3 per each YA replaced on a TA-1201 Flying Squadron, p.455

The 0-Gun Spy is stationed at range 1000 from the planet of value. It cannot be chased down by any ship, except a 1- or 2-Gun Spy, nor may it engage in offensive activities. A Spy has unlimited maneuverability at any speed. It will not collide with anything, even other Spies, so may occupy the same battle board square as another Spy or ship without harm to either vessel. It is an observational loner that always avoids other ships.

The Spy reports at the end of each Cycom the speed/size designations of all enemy ships standing or warping in and the nature of construction activities at that star. “Following” fleets get reports at the start of each year before warp movement.

TA-298 1-Gun Spy, TA-299 2-Gun Spy

Descriptive: Similar to the 0-Gun Spy except for the addition of 1 or 2 feeble guns and a higher mark of Ambush Drive.

Designation: TA-298 1-Gun Spy: YY as in 10/YY.54, 10/YY.18, etc.
 TA-299 2-Gun Spy: ZZ as in 10/ZZ.55, 10/ZZ.20, etc.

Prerequisite: TA-297 0-Gun Spy for the 1-gunner
 TA-298 1-Gun Spy for the 2-gunner.

Development Cost: 16 MT for each TA

Item Cost: 1-Gun Spy: 30 MT
 2-Gun Spy: 40 MT

When inoperable: When destroyed.

Narrative: The 1-Gun Spy is similar to the 0-Gun Spy, except that it has 1 gun with a range of 10. The gun can be fired on overload. The feeble little gun can only be used against another Spy (merchants will not surrender to a YY or ZZ). The small craft also has TA-600yy Ambush Drive, p.306, which allows it to run down a TA-297 0-Gun Spy.

The 2-Gun Spy is the same as the 1-Gun Spy, except for the additional feeble gun, which allows it to fire 1 gun and keep the other for defense. The craft also has TA-600zz Ambush Drive, p.306, which allows it to run down either TA-298 1-Gun Spy or TA-297 0-Gun Spy.

Launch Module: 1 per fb, p.225, attached to a merchant ship, or
 2 in place of each YA carried by a TA-1201 Flying Squadron, p.455.

TA-299 Fortress Manufacturing Ship

Descriptive: The Fortress Manufacturing Ship (FMS) carries everything needed to construct a Geosynchronous Orbiting Fortress (GOF). The GOF is a modified OMF8. The GOF is used to protect TAs 33-36 Orbital Hamlet (OH), Orbital Village (OV), Orbital City (OC) and Orbital Metropolis (OM), all p.153.

Designation: FMS as in 6/FMS.13sd, 4//FMS.4sd, etc.

Prerequisite: TA-110 Super Deflector, p.165

TA-382 Mark III Range Finder, p.228

TA-420 Orbital Moon Fortress, p.238

TAs for torpedoes installed, if any.

Development Cost: 48 MT

Item Cost: The FMS costs the same as a B Class merchant. It is built to speeds 4, 5, 6, 7, or 8. The cost of a GOF is charted below. The .6, .8, .10 or .12 in the Designation denotes the number of guns carried.

Designation	# Guns /Range	Where Found	Max. # Allowed	MT Cost	Time Required To Build
GOF.6rf ³	6/40	OH	1	15	1 full year to build 1 GOF.6.
GOF.8rf ³	8/40	OV	2	20	1 full year to build each GOF.8
GOF.10rf ³	10/44	OC	3	25	1 full year to build each GOF.10
GOF.12rf ³	12/44	OM	4	30	1 full year to build each GOF.12

Optional Weaponry at extra cost: TAs 701-702 Marks I or II Anti-Hallucination Projector (hp) or (shp) can be fitted at a cost of 20 MT to any of the GOF. Additionally:

GOF.6rf³ – 3 Meandering Medusa (3 MT each, 9 MT total), or

4 Marks I - VI Homing Torpedoes (2 MT each, 12 MT for 6 torps), or

8 Asteroid Torpedoes (6 MT for 48 torpedoes)

GOF.8rf³ – 4 Meandering Medusa (3 MT each, 12 MT total), or

4 Marks I - VI Homing Torpedoes (2 MT each, 16 MT for 8 torps), or

8 Asteroid Torpedoes (8 MT for 64 torpedoes)

GOF.10rf³ – 5 Meandering Medusa (3 MT each, 15 MT total), or

4 Marks I - VI Homing Torpedoes (2 MT each, 20 MT for 10 torps), or

8 Asteroid Torpedoes (10 MT for 80 torpedoes)

GOF.12rf³ – 6 Meandering Medusa (3 MT each, 18 MT total), or

4 Marks I - VI Homing Torpedoes (2 MT each, 24 MT for 12 torps), or

8 Asteroid Torpedoes (12 MT for 96 torpedoes)

Repairs: Repairs are conducted only by a TA-270 Repair Ship, p.199, or a TA-271 RSU.

Reloads: A TA-295 Stores Replenishment Ship, p.204, must be used to reload ordnance.

TA Upgrades: The TA-271 Repair/TA-Upgrade Ship, p.199, is the only way to upgrade a GOF's TAs to a higher mark.

Where Installed: At any star colonized with a friendly OH, OV, OC or OM.

When inoperable: The GOF is destroyed when all guns are destroyed. It has single defense (not double). Only gun and TA hits count; all other hits count as misses. The FMS behaves like an ordinary B Class merchant.

Narrative: The Fortress Manufacturing Ship has no guns or defense. The GOF and its weaponry is detailed under Item Cost, above. It has single defense.

Each GOF must be placed on the battle board at range 3 or greater from anything, but always within range 12 of the OH/OV/OC/OM it is protecting.

Chapter 13



Warships



TA-300 Intergalactic Mafia Rental Cartel

Descriptive: IMReC is a warship leasing organization.

Designation: IMReC (its ship is sometimes called the “Wandering Asshole”)

Development Cost: 4 MT.

Prerequisite: TA-1 Intergalactic Mafia Loansharking Organization (IMLO). Not available until the first Cycom of the second Katun (Cycom 17).

Item Cost: Rental unit leased for 16 MT per Cycom.

When inoperable: During first Katun.

Narrative: IMReC leases just 1 type of ship: x10/CS.00ud|***** (Mark XXIV Ambush Drive; Universal Deflector and Mark VI Unguided Torpedos). Cost is 16 MT per Cycom, which is paid at the moment of rental and on year 1 of each succeeding Cycom. The ship starts from either the leasor’s home star or from any of his production center stars immediately upon lease. It travels anywhere the leasor sends it. If the ship is lost, a payment of 200 MT to IMReC is required at the start of the next Cycom. Only 1 at a time may be rented to an empire. Two leased ships will not fight each other. IMReC does not pay warp juice cost. Reloads of expended torpedoes are done at no cost at any production center star (no time required). Repairs are performed normally. An empire may terminate a lease at any time; the leased ship returns instantly to IMReC.

TA-310 Omnificent War Leader (OWL)

Descriptive: There comes a time when an inspirational war leader of dubious talent seizes control of the political process and succeeds in reversing an empire's inevitable slide toward extinction. The Omnificent War Leader (OWL) is given to lengthy patriotic speeches, obsessive micromanagement, kissing drooling babies and hugging untidy tots.

Designation: OWL

Prerequisite: An empire must have engaged in hostile action with any other empire in which weapons were used.

Development Cost: 64 MT

Item Cost: n/a

When inoperable: Never.

Narrative: Every victory scored by your empire is followed by the OWL giving an inspirational war speech that results in a one-time surge of productivity. Defeats are *not* subtracted from victories per Cycom to determine the payoff.

Rewards are paid at the start of the Cycom following the victory.

MT Reward	Victory
200/250/300	Destroy/capture TA-1100 series 80/100/120-gun Doomsday Starship
80/120/160	Kill 1 TA-1370 Superfortress, 80/120/160 guns
100	Capture enemy production center at a Dead Dwarf star
60	Neutralize enemy production center at a Dead Dwarf star
60/100	Neutralize/take over a TA-22 Under-the-Rock Pariah culture
70	Capture enemy production center at a Main Sequence star
40	Neutralize enemy production center at a Main Sequence star
80	Capture <i>or</i> neutralize production center driven by TA-760 Slavery
20	Use force to break enemy's TA-16 Blockade of production center
12/16/20/24	Neut. or capture TAs 33-36 Orbital Hamlet, Village, City, Metropolis
8/16	Kill 1 or 2 GU on enemy colonized Main Sequence Star
30/50	Kill TA-311/312 Admiral Krumbleplotz/Waddington-Bluesnout
8	Kill 3-6 gun non-cruiser warship
20 (per ship)	Destroy or capture any 5- to 9-gun cruiser
50 (per ship)	Destroy or capture 10-22 gunner
80 (per ship)	Destroy or capture 23-40 gunner (200 MT for larger warship)
MT = GU capacity	Capture or destroy any merchant or auxilliary; LL Caravelle = 8 MT
MT = GU capacity	Kill/capture 1 TA-250 series Dimwit +16/32/48/64 MT (by mark)
30	Destroy 1 TA-260 Research University
20/30/50/80	Kill 1 TA-200.1/200.2/200.4/200.16 Warp Juice Mining Module
20/24/32	Kill 1 TA-210/211/212 Marks I/II/III Hyggyns Mining Ship
100	Kill 1 TA-240 Extreme Deification and Exploitation of Nirvana ship
50/60/70	Kill 1 TA-225/226/227 Planet Butcher
20/30/40	Kill 1 TA-330 5/7/9-gun Raider
10/20/30/40	Kill 1 TA-250/251/252/253 Dimwit/Microwit/Nitwit/Halfwit
20	Kill 1 TA-215/216 Bluu/Radd Mining Ship
100	Kill 1 TA-230 Diamond Trader
30/40	Kill 1 TA-370/371 Light/Heavy Scout Carrier
2	Kill 1 TA-370/371 Light/Heavy Scout
10/20/30	Kill 1 TA-377a, b, c Heliostatic Hellfire Machine
8	Kill 1 TA-400/401 Moon Fortress (per 8-gun module)
25	Kill 1 TA-420/421 Orbital or Suicide Moon Fortress
20	Kill 1 TA-220 Asteroid Miner

TA-311 Admiral Baron von Siegfried K. Krumbleplotz

Descriptive: Admiral Krumbleplotz, who is known as the “Maniac of the Dead Dwarf Reach,” is the one in a thousand ship captain of such inspirational character and skill that the crew of his ship achieves a competence and effectiveness well beyond that of an average ship’s complement. Yea, the very decks tremble to his step; the guns of his ship perform in violation of the laws of physics!

Designation: ♂ (symbol is option-4 in Zeal font on Macintosh) as in 8/S.3ad|rd|td/♂

Prerequisite: None

Development Cost: 16 MT

Item Cost: None

Installation Cost: None. Initial embarkment must always be on a newly built or newly upgraded ship and must be on a ship of any size having a warp speed of 7 or more. Available at any production center star after development. Effective the Cycom after installation.

When inoperable: When ship is hulked. Krumbleplotz is killed if his ship is destroyed. Not capturable. Penalty for loss is 40 MT payable at any production-center star the first year of the next Cycom.

Narrative: The long guns of Admiral Krumbleplotz’s ship are able to fire on overload with no damage to the long guns. Long guns are not burned out through use of overload even if desired. The ship fires short guns normally.

A further ability of a ship with Admiral Krumbleplotz embarked is that the ship may self-destruct if it has been hulked *and* in danger of enemy capture.

Admiral Krumbleplotz may be transferred from one ship to another with no time delay. The admiral’s effectiveness is transferred instantly to the new ship and the old ship loses the enhanced capability. The ship receiving Krumbleplotz need not be a new ship.

TA-312 Admiral Countess Lorali Waddington-Bluesnout

Descriptive: Admiral Countess Lorali Waddington-Bluesnout, who is known as the “Madwoman of the Indigo Cluster,” is the same as TA-311 Admiral Krumbleplotz, except for gender and designation.

Designation: ♀ (symbol is option-2 in Zeal font on Macintosh) as in 9/CA.4ad|td|♀

Prerequisite: TA-31 Admiral Siegfried K. Krumbleplotz. Cannot be built until after Krumbleplotz is lost.

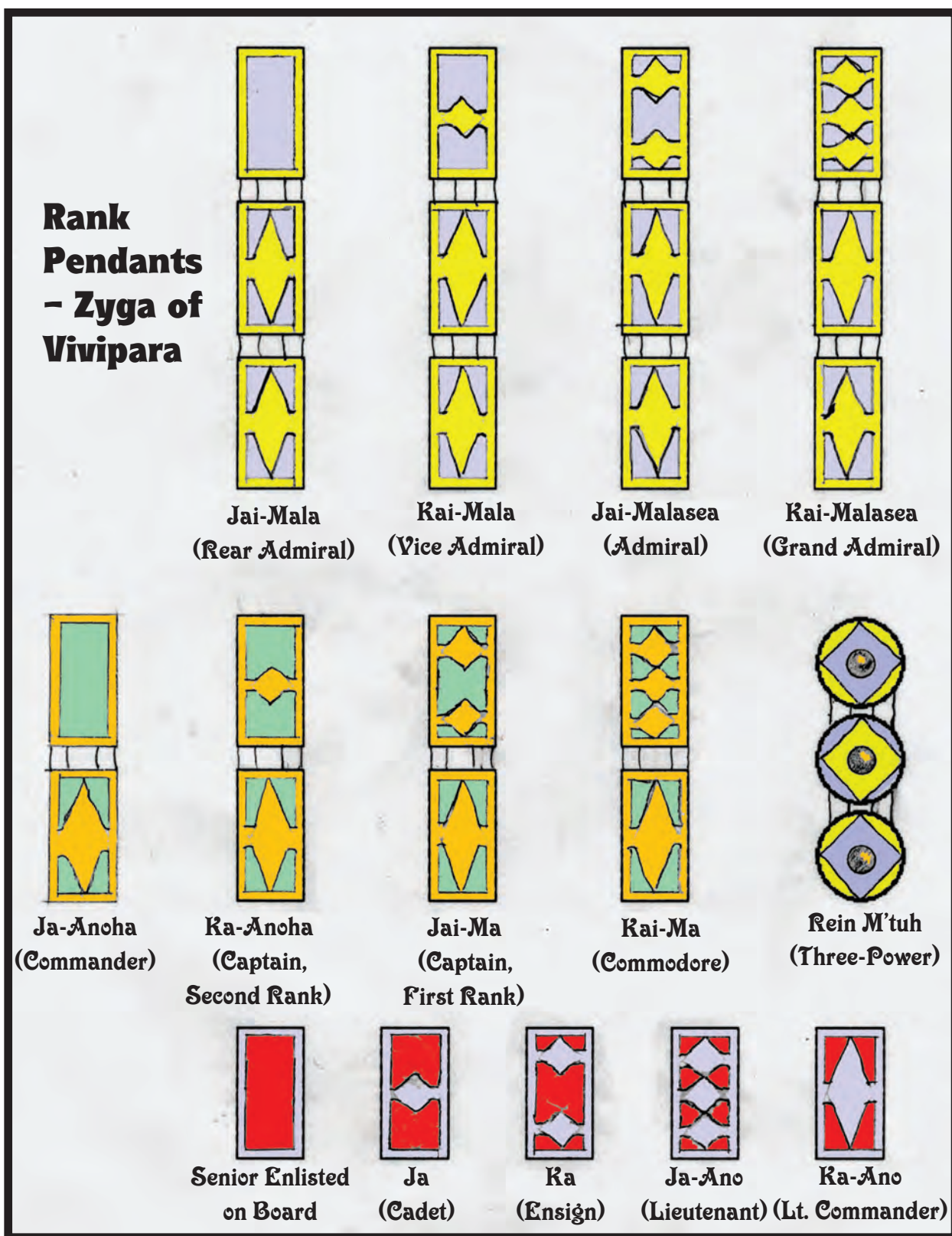
Development Cost: 16 MT

Item Cost: None

Installation Cost: Same as TA-311

When inoperable: Same as TA-311

Narrative: Same as TA-311



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The various space navies that appear in *Space Centurions 10.0* have their own ranks and insignia. The sketch illustration above depicts the ranks of one of those navies, Zyga of Vivipara.

TA-313 Marks e, ee and eee Battle Stars (Elite Crew)

Descriptive: Intensive crew training can improve the efficiency of a warship, but nothing except battle can develop that crew into an elite unit. An elite crew improves the offensive strength of a warship.

Designation: e, ee or eee as in 8/CS.44e, 7/CA.43sd | ti² | ee, 6/CB.45td³ | ti³ | eee, etc.

Prerequisite: None. Must be on a 5-gun warship or larger (p.13). Not awarded to a warship carrying any mark of TAs 380-386 Range Finders and Range Losers (p.228-229).

Development Cost: 64 MT (covers cost of training elite crews for remainder of game)

Item Cost: None. Battle Stars do not count against a ship's TA limit.

When inoperable: When ship is destroyed. Battles stars are not TAs.

Narrative: Battle Stars, which are represented by an "e" for efficiency, are awarded to a ship the year after receiving battle damage. A second incident of battle damage earns an "ee" and a third incident earns an "eee." The effect is the same as TAs 380-386 Range Finders and Range Losers (p.228-229), except that the e's are not awarded to a warship carrying any mark of those TAs.

The "e" moves the ship's attack factor down the Hits Table (p.133) to the next better odds. Example: 6/CH.44e allots 6 attack and 6 defense against the 5 defense of targeted 6/CS.91. That's a 6:5 attack. The "e" improves the attack to 5:4.

Mark e – Accuracy increased by 1 set of odds on the Hits Table.

Mark ee – Accuracy increased by 2 sets of odds on the Hits Table.

Mark eee – Accuracy increased by 3 sets of odds on the Hits Table.

Any mark of "e" against any opposing mark of "e" or against any mark of TAs 380-386 Range Finders and Range Losers (p.228-229) cancels all accuracy adjustments for both ships.

TA-320 Warp Speed 7

TA-321 Warp Speed 8

TA-322 Warp Speed 9

TA-323 Warp Speed 10

Descriptive: These TAs allow an empire to build ships having a warp and battle board speed of 7, 8, 9 or 10, respectively.

Designation: 7, 8, 9, or 10, as in 8/CS, 10/SH, 7/BB, 9/P, etc.

Prerequisite: None. Must be developed in order. Other TAs that describe ships having a speed of 7 or greater cannot be developed until 1 or more of these TAs have been developed.

Development Cost: 32 MT for each TA, starting with TA-320. Must be developed in sequence.

Item Cost: See chart p.131, and others as needed.

When inoperable: N/A

Narrative: The capability of moving a ship faster than speed 6 is a technology lost in the great flight from the ruins of your last empire.

TA-320 allows an empire to build ships having a warp and battle board speed of 7.

TA-321 allows an empire to build ships having a warp and battle board speed of 8.

TA-322 allows an empire to build ships having a warp and battle board speed of 9.

TA-323 allows an empire to build ships having a warp and battle board speed of 10.

TA-330 Raider

Descriptive: The Raider is an excellent ship to conduct long-range patrols that are designed for maximum terror and destruction. Cost is held down by limiting warp speed to 6 but increasing battle board speed to 10. There are also Raiders with warp speed 5 or 4.

Designation: R (5 guns), RR (7 guns), RRR (9 guns) as in 6.10/R.2 or 6.10/RRR.15, etc.

Prerequisite: TAs 320-323 Warp Speed 7, 8, 9 and 10.

Development Cost: 16 MT

Item Cost: The 6.10 Raider costs the same as a 9-speed CS, CM or S (5-, 7- or 9-gunner). Also available are 5.10 and 4.10 Raiders for the cost of an 8- or 7-speed CS, CM or S, respectively (p.131).

When inoperable: When ship is hulked or destroyed

Narrative: The R, RR and RRR can carry TAs available to a 5- 7- or 9-gun warship, except TA-335 Double-Gun Warships (p.213), TA 344-347 series of Armored Warships (p.217) and some other TAs that are specified with the TA involved. Warp drive endurance is unlimited.

TA-335 Double-Gun Warships

Descriptive: Double-Gun Warships have a secondary armament of 20-range guns that equals the number of 40-range guns.

Designation: _ as in 7/CB.20 or 6/M.2, etc. (underline the ship's size designation). The _ designation is not visible to the enemy on the battle board.

Prerequisite: TA-340.10 through TA-340.30 series of Big Warships, p.215, as needed and TA-343 Armored Cruiser, p.216.

Development Cost: 16 MT

Item Cost: Same as and limited to warships on p.131 plus 30%; must be CA or larger. Cannot be used on TA-343 Armored Cruiser, TA-1240 Super Armored Cruiser or TA-1243 Protected Cruiser, each of which have a special design to fulfill that function. The 30% added cost exactly negates the 30% cost reduction earned with TAs 60 and 61 Mass Production Capability (p.158), which returns ship cost to that shown on p.131. Counts against a ship's TA limit, p.142, of TAs.

When inoperable: When ship is destroyed

Narrative: A Double-Gun Warship has a secondary armament of 20-range guns. The number of those guns is equal to the number of 40-range guns and may fire at the same time. One secondary gun is destroyed each time a 40-range gun is destroyed. The short-range guns fire at double strength (7 guns = 14), but may not fire on overload. A ship's defensive strength is based on long guns and is unaffected by firing short guns. Example: A CB could fire 0 long guns, assign 10 to defense, and fire all 10 short guns for 20 attack.

Other TAs in any number may be carried as appropriate for the size of the ship.

TA-340.10 10-13 Gun Warships

TA-340.14 14-16 Gun Warships

TA-340.17 17-21 Gun Warships

TA-340.22 22-28 Gun Warships

TA-340.30 30-40 Gun Warships

Descriptive: Big warships are difficult to build. The research is time-consuming and the industrial infrastructure required to build such powerful leviathans is expensive.

Designation: See p.131

Prerequisite: Must be developed in numeric order: TA-340.10, .14, .17, etc.

Development Cost: 8 MT for each TA, starting with TA-340.10, the 10-gunner.

Item Cost: See p.131

When inoperable: When ship is hulked or destroyed

Narrative: The chart on p.131 shows the cost, number of guns and speeds available.

TA-343 Armored Cruiser

Descriptive: The small Armored Cruiser carries a mix of long guns and short guns combined with armor for the long guns. The experimental AC is a good early game warship.

Designation: AC as in 6/AC.13, 8/AC.17***, 4/AC.3ad|rd|hd|md|gd, etc. Note that normal TA designations for secondary guns and armor are not used; it's a given for the AC.

Prerequisite: None. This is a test platform for the TA-344 series of Armored Warships (p.217) and TA-335 Double-Gun Warships (p.214), which are likely to appear later in the game on large warships after those 2 TAs have been developed. This TA is also a prerequisite for TA-1240 Super Armored Cruisers, p.463, and TA-1244 Protected Cruiser, p.464. TA-335 Double Gun Warships and TAs 344-347 Armored Warships cannot be carried by the AC as it has an earlier version of those capabilities built in.

Development Cost: 32 MT

Item Cost: 10% less than the 8-gun CA (p.131). There is no extra cost for the gun armor and 10 short guns. The ship can carry up to 8 TAs, just as can a CA. The built-in short guns (twice the usual number) and armor do not count as TAs against the 8-TA limit.

When inoperable: When ship is destroyed as per Damage Chart p.133.

Narrative: The AC carries 5 long guns (range 40) and 10 short guns (range 20) on a platform that protects the long guns with armor that is effective one-third of the time. Short guns always fire at double power and cannot be fired on overload as can long guns. Short guns cannot be used for defense as are long guns. Examples: At long range, the ship could fire 3 attack/2 defense or 1 attack/4 defense or some other combination just like a normal 5-gun CS Scout Cruiser. At short range, the AC usually would put all 5 long guns on defense and fire all 10 short guns for 20 attack/5 defense.

Gun damage is scored against long guns (p.133). The ship will lose 2 short guns for each long gun. The AC is rated as an 8-gun CA Heavy Cruiser for the purposes of carrying torpedoes. Torpedoes are lost in relation to long guns. Example: If the AC loses 1 long gun, leaving it with 4, the number of torpedoes left also will be 4.

The AC has only 5 hull factors, so although the ship has a powerful close-range attack factor, its staying power is weak.

The AC's armor protects only the guns against destruction by enemy weapons of any type when the ship is hit by an attack of 4:1 or weaker (Hits Table, p.133). Odds of 5:1 or greater will overwhelm the AC's armor defense and be scored normally. Any hit that fails to penetrate an armored portion of the target ship is counted as a miss.

Chance of armor failure (roll 6-sided die for each gun hit):

- 1 – **Armor fails** (score gun damage normally)
- 2 – **Armor fails** (score gun damage normally)
- 3 – **Armor fails** (score gun damage normally)
- 4 – **Armor fails** (score gun damage normally)
- 5 – Armor effective (no gun damage)
- 6 – Armor effective (no gun damage)

The AC may carry any TAs appropriate and equivalent to those carried by an 8-gun CA, except for the TA-344 series of Armored Warships and TA-335 Double Gun Warships.

An AC cannot be upgraded to a TA-1240 Super Armored Cruiser

TA-344 Armored Warships – TAs**TA-345 Armored Warships – Engines****TA-346 Armored Warships – Hull****TA-347 Armored Warships – Guns****TA-348 Armored Warships – Apocalypse Prevention**

Descriptive: An Armored Warship carries enhanced defensive shields and unbelievably strong armor to protect the ship's vitals and hull integrity. TA-347 is especially powerful.

Designation: ^{AT}, ^{AE}, ^{AH}, ^{AG} or ^{AA} as in 6/DR^{AH}.10, 10/M^{AG}.92, a7/S^{AT}.23ad|rd|td|ti, etc. The ^A designations are *not* visible to the enemy.

Prerequisite: TA-343 Armored Cruiser.

Development Cost: 96 MT for the first of the 5 to be developed and 8 MT for any of the subsequent 4. Can be developed in any sequence.

Item Cost: TAs – Adds 10% to base cost* of ship. 6-gun ships and larger, p.131 only.

Speed – Adds 20% to base cost* of ship. 6-gun ships and larger, p.131 only.

Hull – Adds 20% to base cost* of ship. 8-gun ships and larger, p.131 only.

Guns – Adds 50% to base cost* of ship. 8-gun ships and larger, p.131 only.

Apocalypse – Adds 10% to base cost* of ship. 8-gun ships and larger, p.131.

An Armored Warship may carry any combination of these TAs. Percentage added to base cost* is calculated *before* any reduction earned with TAs 60 and 61 Mass Production (p.158). These TAs cannot be mounted on a TA-330 Raider (p.213) or TA-343 Armored Cruiser (p.216), but can be mounted on the TA-350 series of Plasma Gun Warship (p.217).

When inoperable: When ship is destroyed. Armor installations count against a ship's TA limit (p.142).

Narrative: Each of these TAs provides protection for certain portions of a ship against destruction by enemy weapons. An automatic destruction hit, such as a die roll of 4 or 5 under a 7:1 attack, destroys the ship (Damage Table, p.133). TA-348 Apocalypse Prevention provides 83% protection for a ship from exploding (the double critical hit or 6 - 6 - 6 on the Damage Table). Any hit that fails to penetrate an armored portion of the target ship is counted as a miss.

Chance of armor failure (roll 6-sided die for each hit striking an armored part of ship):

1 – Armor effective (no damage)

2 – Armor effective (no damage)

3 – Armor effective (no damage)

4 – **Armor fails** (score damage normally)

5 – **Armor fails** (score damage normally)

6 – **Armor fails** (score damage normally)

Apocalypse Prevention is 83% effective; only a die roll of 6 explodes the ship.

TA-344 Armored Warships – TAs and TA-345 Armored Warships – Engines provide no protection against the TA-520 series of Electromagnetic Burst Torpedo, p.282. Protection against that torpedo is provided only by the TA-155 series of Electromagnetic Burst Torpedo Deflector, p.170.

* See discussion of “Base Cost” on p.130.

TA-350 Mark I Plasma Gun Warship

Descriptive: The Mark I Plasma Gun Warship mounts a different type of gun than all other warships. Traditional guns are inter-dimensional anti-matter weapons that generate exploding energy balls in the vicinity of an enemy ship. The Plasma Gun hurls superhot plasma down a warship-generated “octocon-junctional unreality seam” that acts as a no-time-of-arrival delivery system.

Designation: ^P as in 6/Z^P.20, 8/S^P.45, 4/DA^P.21, etc., (the superscript ^P indicates the ship mounts Mark I Plasma Guns instead of the normal gun). The ^P is *not* visible to the enemy.

Prerequisite: None. Must be on warship with 8 to 40 guns.

Development Cost: 64 MT

Item Cost: Plasma Gun Warships cost 10% less than traditional warships (p.131). TAs cost the usual amount extra.

When inoperable: When ship is hulked or destroyed.

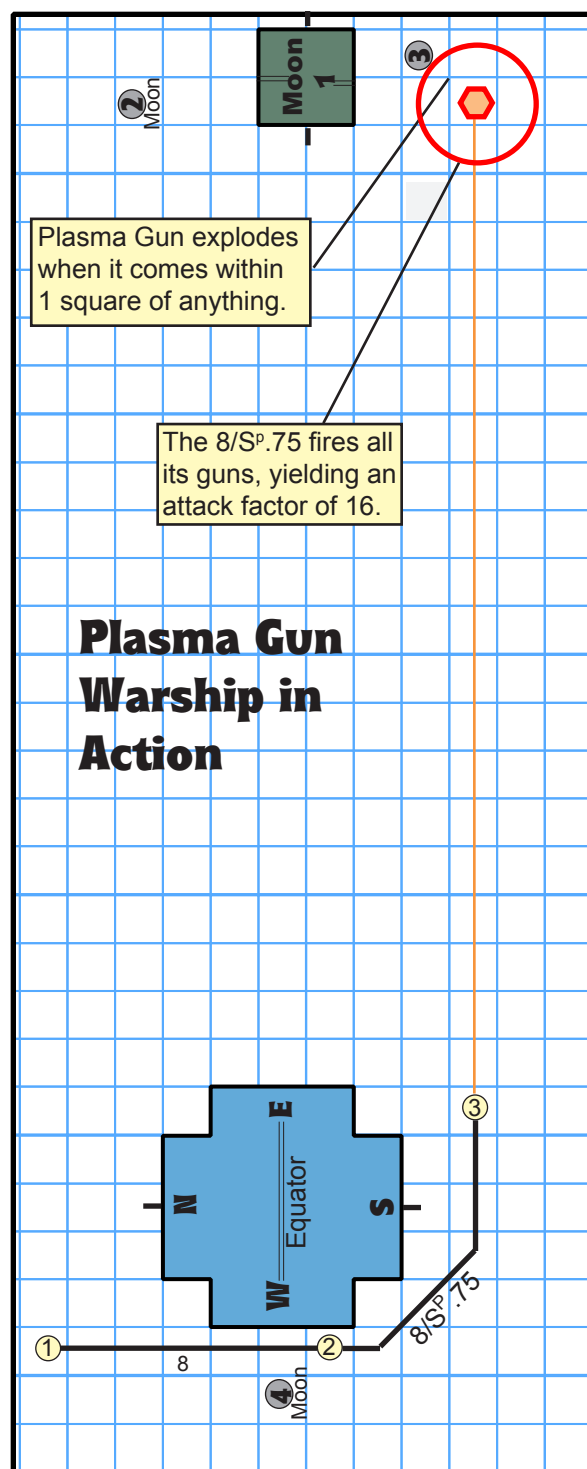
Narrative: The Plasma Gun Warship fires plasma along any of the 8 directions on the battle board. The plasma explodes when it comes within 1 square of any celestial object, such as a planet, moon or ring. It also explodes next to TA-490 series of Asteroid Torpedo (p.267) or when within 1 square of a ship in normal space or in pre-warp, which then serves to knock that ship out of pre-warp.

The Plasma Gun has a range of 38 on the diagonals (NE, SE, SW, NW) and 39 along the cardinal points (N, S, E, W).

The attack factor of the gun is twice the number of guns carried. Example: A 14-gun Battleship (BB^P) fires 10 of its 14 guns, which yields an attack factor of 20. The remaining 4 defense is *not* doubled. TA-209 Admiral Krumbleplotz or TA-210 Admiral Waddington-Bluesnout boost the attack factor of a Mark I Plasma Gun Warship to three times the number of guns carried.

A Mark I Plasma Gun cannot be fired on overload.

A Plasma Gun Warship may carry any TAs appropriate for a ship of its size.



TA-351 Mark II Plasma Gun Warship

Descriptive: The Mark II Plasma Gun Warship is functionally the same as the Mark I except for the addition of TA-347 Armored Guns (p.217) to the parent ship.

Designation: ^{PP|AG} as in 6/Z^{PP|AG}.21, 8/S^{PP|AG}.44, 4/DA^{PP|AG}.27, etc., (the superscript ^{PP} indicates the ship mounts Mark II Plasma Guns instead of the normal gun and the ^{AG} indicates the ship has armored guns). The ^{PP} or ^{AG} are *not* visible to the enemy.

Prerequisite: TA-350 Mark I Plasma Gun Warship (p.218) and TA-347 Armored Guns (p.217), which must be carried. Must be on warship with 8 to 24 guns.

Development Cost: 16 MT

Item Cost: Mark II Plasma Gun Warships cost the same as traditional warships (p.131). The addition of TA-347 Armored Guns adds 30% to base cost (p.142) instead of 50%.

When inoperable: When ship is hulked or destroyed.

Narrative: The Mark II Plasma Gun Warship is identical to the Mark I except that TA-347 Armored Guns is carried.

The Mark I is automatically upgraded to the Mark II by the simple act of adding TA-347 Armored Guns to the ship.

TA-352 Mark III Plasma Gun Warship

Descriptive: The Mark III Plasma Gun Warship has a triple attack factor.

Designation: ^{PPP} as in 6/Z^{PPP}.22, 8/S^{PPP}.46, 4/DA^{PPP}.27, etc., (the superscript ^{PPP} indicates the ship mounts Mark III Plasma Guns instead of the normal gun). The ^{PPP} is *not* visible.

Prerequisite: TA-351 Mark II Plasma Gun Warship. Must be on warship with 8 to 22 guns.

Development Cost: 64 MT

Item Cost: Mark III Plasma Gun Warships cost the same as traditional warships (p.131). The addition of TA-347 Armored Guns (p.217), which must be carried, adds 30% to base cost (p.142) instead of 50%. Finally, the more powerful guns add 2 MT per gun to the final cost.

When inoperable: When ship is hulked or destroyed.

Narrative: The Mark III Plasma Gun Warship is identical to the Mark II except that the Plasma Guns have a triple (3X) attack factor, as opposed to double.

TA-209 Admiral Krumbleplotz or TA-210 Admiral Waddington-Bluesnout boost the attack factor of a Mark I Plasma Gun Warship to four times the number of guns carried. A Mark III Plasma Gun (but not the Mark I or Mark II) can be fired on overload for a 1-time 4X attack factor.

The Mark II is upgraded to the Mark III by paying the additional 2 MT per gun cost. The upgrade requires 1 full year while the ship is landed in a helpless status on the planet of value at a production center star.

TA-355 Morphing Warship

Descriptive: The Morphing Warship is able to exchange guns for speed.

Designation: mw as in 8/CS.49mw, 7/GA.50mw, 6/CS.51mw, etc.

Prerequisite: None

Development Cost: 32 MT

Item Cost: 1 MT per gun for 8-speed CS or GA warships listed on p.131.

2 MT per gun for 7-speed CS or GA warships listed on p.131.

3 MT per gun for 6-speed CS or GA warships listed on p.131.

When inoperable: A ship may not use its mw capability if it has suffered any damage.

Narrative: The Morphing Warship is able to exchange guns for speed. The ship may accomplish this during movement from 1 battle board round to the next. The morph requires the ship to use full defensive mode (if any) for the remainder of the battle. Deflector TAs and Ambush Drives are the only functional TAs after the morph. The only real use for this TA is to build an inexpensive scouting ship that is able to upgrade itself in an attempt to flee from a superior force.

Warp drive endurance for each ship is the same as that for the GA and CS, respectively, listed on p.131.

Once morphed, a ship *must* wait until the following year before it *will* remorph to its original configuration. All TAs are fully functional after remorphing. Morphings allowed are:

Speed 8 CS or GA: Morph 3 guns to achieve speed 10

Speed 7 CS or GA: Morph 4 guns to achieve speed 10

Speed 6 CS or GA: Morph 5 guns to achieve speed 10

TA-358 Scout Galleon

Descriptive: The Scout Galleon has unlimited warp drive, which the normal Galleon described on p.131 does not have. The Scout Galleon is a long-range, short-gun exploration ship that is cheaper than the long-gun CS Scout Cruiser, p.131. This is the least expensive warship that can be used as cannon fodder for long range exploration.

Designation: GS as in 8//GS.32, 9//GS.21ud, 10//GS.93*****, etc.

Prerequisite: TAs 321-323 Warp Speed 8, 9 or 10 as needed and TA-392 Enhanced Maneuverability Capability. The // counts against the ship's TA limit.

Development Cost: 4 MT

Item Cost: 8//GS – 112 MT (cost includes // and unlimited warp engines).

9//GS – 140 MT (cost includes // and unlimited warp engines).

10//GS – 210 MT (cost includes // and unlimited warp engines).

When inoperable: As per damage chart, p.133. The // counts as a TA that can be destroyed.

Narrative: The Scout Galleon has 5 short guns and functions like the Galleon, p.131, except that it has unlimited warp engines and TA-392 Enhanced Maneuverability Capability, p.232, is built in. The // counts against the ship's TA limit of 4 TAs (other 5-gunners can carry up to 8 TAs).

TAs 60-61 Mass Production Capability can be used to reduce the cost of these ships.

TA-360 Solar System Defense Ship

Descriptive: The Solar System Defense Ship is assigned to protect the planet of value and nearby ships, but lacks warp drive and some crew support facilities, such as the cloning labs to generate a new crew after each warp jump. This results in a powerful ship at reduced cost that cannot roam the galaxy.

Designation: ^{SS} as in 6/DR^{SS}.10, 10/M^{SS}.2, etc. The designation is visible to the enemy.

Prerequisite: Limited to 9-gun warships and larger.

Development Cost: 32 MT

Item Cost: Half the cost of a standard warship (p.131).

When inoperable: When the ship is hulked or destroyed.

Narrative: The primary advantage of the Solar System Defense Ship (^{SS}) is that it costs 50% that of a standard warship that has warp drive. TAs 60-61 Marks I and II Mass Production Capability cannot be used to further reduce the cost. The ^{SS} may carry any TA appropriate to the size of the ship, except for TA-16 Blockade, TAs 800-813 Sub-Warp Drive or TA-600 series of Ambush Drive. Warp drive cannot be added to this ship.

A Solar System Defense Ship dies at year's end after its star is conquered or neutralized.

TA-361 Monitor

Descriptive: The monitor is a specialized warship that is frequently used for solar system defense even though it has warp drive. The primary advantage is that it provides good bang for the buck, especially during mid-game.

Designation: MON as in 4.6/MON.35, 4.6/MON.17ud|FFF|hpc|(shp)|*****, etc. The speed and size designations are visible to the enemy. The MON has warp speed of 4 and battle board speed of 6.

Prerequisite: None

Development Cost: 16 MT

Item Cost: 140 MT plus TAs. Cannot carry TA-335 Double-Gun Warships.

When inoperable: When the ship is hulked or destroyed.

Narrative: The MON carries 10 long guns and has 6 defense. 1 defense is destroyed for each gun destroyed. Example: if the MON loses 1 gun the defense drops to 5. Lose 2 guns and the defense drops to 4. Lose 6 guns and the defense is 0. The ship fires its long guns independently of defense, which always starts at 6 until damage to guns reduces defense.

The MON has warp speed of 4 and battle board speed of 6. Warp drive endurance is limited to just 1 year away from a production center star.

The ship carries a maximum of 6 TAs. Torpedoes and other weapons carried by the MON are mounted as if the ship were a 6-gun CL Light Cruiser (p.131) and are lost in conjunction with defense.

Each engine loss reduces warp speed by that amount. It also reduces maneuverability and JJ. A ship with no engines cannot enter pre-warp. Examples: a 4.6/MON takes 2 engine hits, leaving it with warp speed 2 and battle board maneuverability of 4. 4 engine hits would leave the MON unable to enter pre-warp, but it still could enter Sub-Warp with a maneuverability of 2. Engine losses do not reduce battle board speed unless the ship warps in with pre-existing engine damage.

TA-364 Torpedo Cruiser

Descriptive: The Torpedo Cruiser (CT) is a greatly modified Heavy Cruiser (p.131) that can carry many different types of torpedoes all on 1 platform.

Designation: CT as in 6/CT.101, 10/CT.29, etc. Designation is visible to the enemy.

Prerequisite: The TAs for the torpedoes carried.

Development Cost: 16 MT

Item Cost: Approximately 10% less than a CA (p.131) plus cost of installing the torpedoes and other TAs carried. Here is the base cost of a CT: 10/CT: 330 MT, 9/CT: 220, 8/CT: 175, 7/CT: 137, 6/CT: 110, 5/CT: 94, 4/CT: 82

When inoperable: When the ship is hulked or destroyed. The torpedoes carried are destroyed as other TAs (p.133).

Narrative: The advantage of a Torpedo Cruiser is that it costs slightly less than a Heavy Cruiser (p.131), but it can carry all the torpedoes suitable for an 8-gun warship on a single platform. The negative is that the ship has no guns, just 8 defense, which is destroyed in battle just as are guns/defense on a normal warship. The CT always uses maximum defense. Warp drive endurance is unlimited.

The CT cannot be upgraded, except to increase speed or add more torpedoes, deflectors or other TAs suitable for a CA. The torpedo TAs the CT can carry and fire are:

TA-450-455 Unguided Torpedo (8 carried), & TA-459 Torpilleur Capability (Unguided)

TA-465 Mark VI Phyton Torpedo (attack 24); Phyton *disallows* any Unguided Torpedo

TA-470-475 Homing Torpedo (8 carried), & TA-479 Torpilleur Capability (Homing)

TA-480 series of Toss Torpedo CANNOT BE CARRIED!

TA-500-505 Meandering Medusa (4 carried)

TA-509a-h Super Meandering Medusa (4 carried)

TA-510-515 Negative Energy Torpedo, & TA-518 Torpilleur Capability (Neg. Energy),
(8 carried)

TA-520-523 Electromagnetic Burst Torpedo (8 carried)

TA-550-555 White Hole Torpedo (2 carried)

TA-560-563 Time Stasis Torpedo (2 carried)

TA-530-531 Gravity Bomb Torpedo (4 carried)

TA-570-572 Mine and MineTorp (16 Mines or 8 MineTorps)

TA-370 Scout Carrier, Light

Descriptive: The Light Scout Carrier's sole function is to carry Light Scouts or Heavy Scouts from star to star using warp drive. The carrier's warp drive endurance is unlimited.

Designation: CVL as in 8/CVL.5 or 10/CVL.13. The designation is visible to the enemy, as well as the number and type of Light Scouts (LS) or Heavy Scouts (HS) on board. Also, LS or HS as in 8//HS.13, 10//LS.96 or 9//HS.212, etc.

Prerequisite: TA-394 Enhanced Maneuverability Capability (p.232)

Development Cost: 4 MT

Item Cost: See chart, p.224. The HS and LS have TA-394 Enhanced Maneuverability, p.232, at no extra cost, as signified by the // in their designation. Mass Production Capability, p.158, cannot be used to cut the cost of either the CVL or its LS and/or HS.

When inoperable: When the CVL and all scouts are hulked or destroyed.

Narrative: The CVL carries 8 1-gun Light Scouts (LS) or 8 2-gun Heavy Scouts (HS) or a mixed complement of LS and HS. Both the LS and HS carry short guns (range 20) that fire at double strength. Defense is normal. Scouts must clump together on the same battle board square to form a collective attack and defense. All scouts from *each* CVL must be clumped in two 4-unit stacks or 1 stack of 8. Gun and hull damage kill off members of a stack 1 at a time. Engine and TA hits count as hull hits, which includes hits scored by the TA-520 series of Electromagnetic Burst Torpedo, p.282, and other torpedoes.

The LS and HS may carry deflector TAs (ad, rd, hd, md and gd only) and torpedoes as appropriate. The CVL has no guns and 4 defense. It can carry deflector TAs of any type.

The LS (only) has another important function: It has warp drive and crew support for 2 years, allowing independently operated LS to be used for explorations to nearby stars as long as the CVL remains at the launch site until the LS returns. All LS warp movement must be contained within a Cycom. Each LS consumes warp juice as would a fleet. All LS infected by a plague planet kills the CVL and all LS/HS it supports. The temporary fleet number of the LS must always be the parent CVL's fleet number.

There is no limit on the number of LS or HS that can be launched from a CVL. When any LS or HS departs the CVL, it must do so at warp 10 and at legend speed. Landings must be made at the end of a battle board move and considered landed.

The CVL and its complement of scouts must be destroyed simultaneously. If the CVL is lost, all its scouts are lost at the end of the war. In the rare case when the number of LS and HS surviving a battle exceeds the capacity of a surviving CVL, the CVL can remain at the battle site and support the LS and HS until a CVL with vacancies arrives to adopt orphans.

TA-370 Scout Carrier, Heavy

Descriptive: Same as TA-140 Light Scout Carrier except that it has more than double the carrying capacity.

Designation: CVA as in 8/CVA.5 or 6/CVA.13sd, etc. The designation is visible to the enemy, as well as the number and type of LS and/or HS on board the CVA.

Prerequisite: TA-370 Scout Carrier, Light

Development Cost: 4 MT

Item Cost: See chart, p.224. Mass Production Capability, p.158, cannot be used.

When inoperable: When the CVA and all its scouts are hulked or destroyed.

Narrative: The CVA carries 18 1-gun Light Scouts (LS) or 18 2-gun Heavy Scouts. The CVA has no guns and 8 defense. All scouts from *each* CVA must be clumped in two 9-gun stacks or three 6-unit stacks. Operational details similar to TA-370 Light Scout Carrier.

Designation	Number of Guns	Gun Range	HS or LS Capacity	Cost vs. Speed					Base 1 Cost	MT Cost
				10	9	8	7	6		
CVA*	0	n/a	18	240	160	128	100	80	40	n/a
CVL*	0	n/a	8	96	64	51			16	n/a
HS*	2	20	n/a	20	13	11			3.33	n/a
LS*	1	20	n/a	18	12	10			3.00	n/a
fb	0	n/a	1	n/a	n/a	n/a	n/a	n/a	n/a	10

* Torpedoes carried by the HS or LS cost extra; see pertinent torpedo TAs for details. The HS and LS have TA-394 Enhanced Maneuverability, p.232, built in at no extra cost. The cost of the CVA, CVL, HS and LS cannot be reduced by using the TA-60 series of Mass Production Capability, p.158.

The HS and LS may carry these torpedoes:

TA-450 series of Unguided Torpedo (Marks I through IV)

TA-470 series of Homing Torpedo (Marks I through V)

TA-480 series of Toss Torpedo (Marks I through XV)

TA-520 series of Electromagnetic Burst Torpedo (Mark I only)

TA-540 series of Dislocation Torpedo (Marks I through V)

TA-372 Fighter Bay Module

Descriptive: The Fighter Bay Module is a self-contained hangar that is attached to a warship. The module can carry either the Light Scout (LS) or the Heavy Scout (HS).

Designation: TA-372, etc., the digit representing the number of modules on the warship. Example: TA-372.10, Z.13ad|rd|md|fb. The designation, including number of fb modules, is visible to the enemy, as well as the number and type of LS and/or HS on board.

Prerequisite: TA-371 Heavy Scout Carrier, which itself requires TA-370

Development Cost: 32 MT

Item Cost: Each Fighter Bay Module costs 10 MT. The fb can carry either 1 LS or 1 HS. A non-warship cannot carry a mixed load of HS and LS. Must be on 9-gun warship or larger. 1 module is attached for every 3 guns on the parent warship. Examples: A 9-gun warship can carry 3 modules, a 40-gun warship 13 modules, etc. A full complement of modules must be carried, i.e., a 15-gun warship must carry 5 modules; it may not carry fewer. There are 2 fb modules on each TA-401 Super Moon Fortress' 8-gun module, p.236, for a maximum of 8 fb on an MF32. An MF of any size may not mount a partial complement of fb.

When inoperable: 1 Fighter Bay Module is destroyed with each gun destroyed on the mother ship or MF's 8-gun module. Empty modules are destroyed first.

Narrative: All scouts from *each* warship must be clumped in a single stack not exceeding 10. If more than 10 Heavy Scouts are carried, divide into 2 equal or nearly equal stacks.

Operational details of an LS or HS operating from an fb module are the same as described with TA-370 Scout Carrier, Light, p. 223.

The mother ship may not jettison fb modules, but may junk, sell or discard them at a production center star. Fighting ability is not impaired by carrying fb.

A mother ship in Sub-Warp (TA-800 series of Sub-Warp Drive, p.308) may deploy and fight the HS and LS, but must retrieve the scouts prior to departing Sub-Warp. HS and LS abandoned in Sub-Warp are lost instantly upon the mother ship's departure from Sub-Warp.

TA-373 Fighter Bay Modules for Merchants

Descriptive: The Fighter Bay Modules for Merchants are self-contained hangars that can be attached to the sides of a large merchant ship. The modules can carry either the Light Scout (LS) or the Heavy Scout (HS). This TA is a repeat of TA-372 (p.224), except that the fb is modified slightly so that it can be attached to a large merchant ship.

Designation: fb1, fb2, fb3, etc., the digit representing the number of fb attached to the merchant as in 8/A.5fb4 or 6/D.13ad|rd|... If the designation, including number carried, is visible to the enemy, but the number of Light Scouts (LS) or Heavy Scouts (HS) carried within are not visible until they are launched.

Prerequisite: TA-372 Scout Carrier, Heavy

Development Cost: 1000

Cost: Each Fighter Bay Module costs 1000. Merchants can carry either 1 LS or 1 HS.

When Inoperable: When the mother ship is destroyed.

Narrative: A Fighter Bay Module must be attached to a standard (p.130) merchant ship of 4 GU carrying capacity or larger. It cannot be carried by the D or E Class cargo ships. 1 module is attached for every 4 GU capacity of the merchant. Examples: A 4-GU merchant can carry 1 module, a 6-GU merchant 4 modules, etc. A full complement of modules must be carried, i.e. a 4-GU merchant must carry 4 modules; it cannot carry fewer.

All scouts from *each* merchant must be clumped in a single stack not exceeding 8. If more than 8 Heavy Scouts are carried, divide into 2 stacks of 8.

Other operational details of the fb for merchants are identical to the TA-372 fb.

TA-377a, b, c Marks I, II, III Heliostatic Hellfire Machine

Descriptive: The Heliostatic Hellfire Machine uses a system of mirrors to focus the sun's electromagnetic emissions, the planet of value's magnetic field and electricity generated by the forces of entropy into a fearsome bolt of hellfire. The fragile contraption is best used in conjunction with other defensive weapons.

Designation: H, HH or HHH as in 4/H.12, 4/HH.85, 4/HHH.6, etc.

Prerequisite: None. Must be developed in sequence

Development Cost: Mark I 64 MT, Mark II 32 MT, Mark III 16 MT

Item Cost: Mark I 40 MT, Mark II 50 MT, Mark III 60 MT. TA add-ons have normal cost.

When inoperable: Each gun fired at the H, HH or HHH destroys 1 square of potential hellfire blast pattern. The H can take 9 hits before it is inoperable, the HH 18 hits and the HHH 27 hits. Long guns fired on overload and short guns that have double power each count as 1 gun. The same rule applies to TA-350 series of Plasma Gun Warship (p.218). Each torpedo blast (only those with an explosion) is equivalent to 3 gun hits as is the TA-570 series of MineTorp (p.301). An H that crashes into a TA-490 series of Asteroid Torpedo (p.267) is destroyed. TAs carried are killed as the last hellfire blast patterns are eliminated. A damaged H repairs itself and its TAs from 1 year to the next at no cost.

Narrative: The H is built on site at a production center star. The H may be towed by a TA-290 Tow Ship (p.202) and is operational the battle board move after tow ends. An H may be dropped anywhere on the battle board by a Tow Ship moving at speed 4.

The H, HH or HHH lack warp drive and have no guns/defense. They may carry: TA 130 series of Torpedo Interceptor (p.167-168 & p.172), any torpedo using 8- or 9-gun warship capacity and TAs 800-813 series of Sub-Warp Drive (p.308-311); the latter is 16 MT.

The H always moves at speed 4 (never less, never more) regardless of the movement system used. It can make 2 45° turns per battle board turn, regardless of damage. The H of any mark is immune to blockade if it remains within range 8 of the planet of value.

The H is functional anywhere on the battle board and can be within range 1 of anything and still fire. It must be located at a Main Sequence Star, Dead Dwarf or the Geode Moon Base of a Multiple Star. Any number may be at a star.

The hellfire has a range of 1 to 40 and an attack factor of 6:1 regardless of target size. The H fires once per battle board turn and the blast occurs the following battle board turn. If the target is protected by a standalone TA-102 Heat Deflector (p.163) in addition to a TA-110 Super Deflector (p.165) or TA-150 Universal Deflector (p.170) the attack is cut to 4:1. TA-344 series of Armored Warships (p.217), Range Finders and Range Losers are ineffective. The hellfire blast pattern for the Mark I H is any 9 (or fewer) contiguous squares on the battle board. The blast pattern for the Mark II is 18; the Mark III is 27. The blast pattern can be in any configuration as long as each hellfire blast square is joined on a side by another square. The Mark II can divide fire between 2 targets and the Mark III between 3.

The H fires simultaneously with guns. The H player must indicate which squares are being attacked after opponents have recorded their next move. Damage is not scored until after the target makes its next move, which may or may not bring it to peril. It must be possible to draw a straight line (use a ruler) from the Hellfire Machine to all squares of the blast pattern. Blast pattern squares only partially exposed can be hit (illustration, p.227).

Multiple Hellfire Machines may gang up on 1 target. The cooperative blast patterns can be adjacent, doubled up or partly doubled up. A target of any size or type is destroyed if it moves into a doubled blast pattern whether or not it is protected by a Heat Deflector.

Hellfire will destroy an asteroid launched by a ship equipped with TA-410 Moon Buster (p.237). A Moon Buster ship still pushing can be hit, too. Hellfire kills Asteroid Torpedoes.



TA-380 Mark I Range Finder

TA-381 Mark II Range Finder

TA-382 Mark III Range Finder

Descriptive: The Range Finder enhances the accuracy of guns.

Designation: Mark I: rf¹ as in 8/CS.22ad|rd|td|***|rf¹ or 6/ZN.54sd|rf¹, etc.

Mark II: rf² as in 8/CS.22ad|rd|td|***|rf² or 6/ZN.54sd|rf², etc.

Mark III: rf³ as in 8/CS.22ad|rd|td|***|rf³ or 6/ZN.54sd|rf³, etc.

Prerequisite: Mark I: None. Must be on 5-gunner (long guns) or larger

Mark II: TA-44 Mark I Range Finder. Must be on 7-gunner or larger.

Mark III: TA-45 Mark II Range Finder. Must be on 9-gunner or larger.

Development Cost: Mark I 128 MT

Mark II 64 MT

Mark III 32 MT

Item Cost: All marks add 10% of base 1 cost (p.131, righthand column) to overall cost of warship.

When inoperable: Destroyed as a TA, p.133.

Narrative: The Range Finder increases gunfire accuracy, including that of the TA-350 series of Plasma Gun (p.218). Players move an attacker's attack factor down the Hits Table (p.133) to the next better odds. Example: 6/CH.44rf allots 6 attack and 6 defense against the 5 defense of targeted 6/CS.91. That's a 6:5 attack. The Mark I Range Finder improves the attack to 5:4.

Mark I – Accuracy increased by 1 set of odds on the Hits Table.

Mark II – Accuracy increased by 2 sets of odds on the Hits Table.

Mark III – Accuracy increased by 3 sets of odds on the Hits Table.

In multiship battles where several ships fire at a single target, the attackers must use the lowest mark of rf present on the firing ships to calculate hits.

TA-384 Mark I Range Loser

TA-385 Mark II Range Loser

TA-386 Mark III Range Loser

Descriptive: The Range Loser reduces the accuracy of enemy gunfire.

Designation: Mark I: rl¹ as in 8/CS.22ad|rd|td|***|rl¹ or 6/ZN.54sd|rl¹, etc.

Mark II: rl² as in 8/CS.22ad|rd|td|***|rl² or 6/ZN.54sd|rl², etc.

Mark III: rl³ as in 8/CS.22ad|rd|td|***|rl³ or 6/ZN.54sd|rl³, etc.

Prerequisite: Mark I: TA-380 Mark I Range Finder. Must be on 5-gunner or larger.

Mark II: TA384 Mark I Range Loser. Must be on 7-gunner or larger.

Mark III: TA-385 Mark II Range Loser. Must be on 9-gunner or larger.

Development Cost: Mark I 32 MT

Mark II 64 MT

Mark III 128 MT

Item Cost: Marks I, II and III add 10% of base 1 cost (p.131, righthand column) to warship's overall cost.

When inoperable: Destroyed as a TA per Damage Table, p.133.

Narrative: The Range Loser reduces enemy gunfire accuracy, including TA-350 series of Plasma Gun (p.218). Players move an attacker's attack factor up the Hits Table (p.133) to the next worse odds. Example: 6/CH.44rf allots 6 attack and 6 defense against the 5 defense of targeted 6/CS.91. That's a 6:5 attack. The Mark I Range Loser weakens the attack to 7:6.

Mark I – Attacker's gunfire accuracy reduced by 1 set of odds on the Hits Table.

Mark II – Attacker's gunfire accuracy reduced by 2 sets of odds on the Hits Table.

Mark III – Attacker's gunfire accuracy reduced by 3 sets of odds on the Hits Table.

TA-387 Combined Range Finder/Range Loser

Descriptive: The Combined Range Finder/Range Loser provides the capabilities of both weapons systems. The cost is the same, but the advantage lies in reducing the number of TAs mounted on a ship without a decrease in capability.

Designation: rfl as in 8/CB.23rfl, 7/P.445ud|++++++|FFF|rfl, etc.

Prerequisite: TA-382 Mark III Range Finder (above) and TA-386 Mark III Range Loser (next page). Must be on an 8-gun warship or larger.

Development Cost: 16 MT

Item Cost: Adds 30% of base 1 cost (p.131, righthand column) to warship's overall cost.

When inoperable: Destroyed as a TA per Damage Table on p.133.

Narrative: The rfl functions exactly as the Mark III Range Finder, p.228, and Mark III Range Loser, above.

TA-388 Mark I Battle Damage Time Machine

Descriptive: Physicists and science fiction writers alike have long studied the imponderable enigma and sequential implications of time travel. After intense investigation far, far in the future, a means was developed to move a warship approximately 1 whole minute(!) into the past. Reversing battle damage was the mundane but expected use to which it was put.

Designation: tm as in 8/CA.52tm, 5/DA.73tm or 9/S.15tm, etc.

Prerequisite: None

Development Cost: 96 MT

Item Cost: 10% of base 1 cost, rounding off fractions, of a warship (right-hand column on p.131). Available to any 5-gun warship or larger.

When inoperable: Destroyed as a TA (Damage Table, p.133).

Narrative: The Mark I Battle Board Time Machine has the ability to move a warship approximately 1 minute into the past. This allows the defending ship's captain to decide if he wants to accept the damage his ship has taken that particular battle board round, or go back to 1 minute before the damage was taken. Going back 1 minute forces the attacker to recalculate hits and damage (p.133). The tm can be used once each battle board round. The defending ship must accept the result of the second round of battle damage.

TA-389 Mark II Battle Damage Time Machine

Descriptive: Same as Mark I.

Designation: tm² as in 8/CA.52tm², 5/DA.73tm² or 9/S.15tm², etc.

Prerequisite: TA-720 Mark I Battle Damage Time Machine

Development Cost: 96 MT

Item Cost: 10% of base 1 cost, rounding off fractions, of a warship (right-hand column on p.131). Available to any 5-gun warship or larger.

When inoperable: Destroyed as a TA (Damage Table, p.133).

Narrative: The Mark II Battle Damage Time Machine has the ability to move a warship as many as 2 times into the past. The tm² can be used either once or twice each battle board round. The defending ship must accept the result of the third round of battle damage. Otherwise same as the Mark I.

TA-390 Mark I Tractor Beam

Descriptive: The Tractor Beam allows a large ship to control the movements of a single smaller ship.

Designation: t as in 8/DN.12t, 5/Z.85t, 6/P.13t, etc.

Prerequisite: None

Development Cost: 64 MT

Item Cost: 2 MT per gun – May be mounted on any warship with 5 or more guns.

When inoperable: Destroyed as a TA (Damage Table, p.133).

Narrative: The Mark I Tractor Beam has range 20 and is used to control the movements of another warship. The t-equipped warship is able to control a 1- to 10-gun warship or C Class merchant or smaller and direct the victim's speed and course as long as the victim stays within range 20 of the captor. This is accomplished by the captor filling in the victim's "Next Move" entry on the Battle Record, p.134. The victim cannot be coerced into making illegal movements. The victim's guns/defense and TAs are unaffected.

The larger ship dominates if opposing t-equipped ships meet. Same size ships neutralize all t on each other as long as they are within range 20. 3 or more t-equipped ships all cancel each other regardless of size. Damage reduces the number of t along with guns.

TA-391 Mark II Tractor Beam

Descriptive: The Mark II Tractor Beam allows a large ship to control the movements of two smaller ships simultaneously.

Designation: tt as in 8/DN.12tt, 5/Z.85tt, 6/P.13tt, etc.

Prerequisite: TA-70 Mark I Tractor Beam

Development Cost: 32 MT

Item Cost: 2 MT per gun – May be mounted on any warship with 5 or more guns.

When inoperable: Destroyed as a TA (Damage Table, p.133).

Narrative: The Mark II Tractor Beam is the same as the Mark I except that the tt-equipped ship can control the movements of 2 non-tt-equipped victims simultaneously. This leads to the obvious tactic of the captor attempting to maneuver 2 victims into a collision. The Mark II confers no other advantage.

TA-392 Enhanced Maneuverability, 0-10 Guns**TA-393 Enhanced Maneuverability, 11-14 Guns****TA-394 Enhanced Maneuverability, 15-19 Guns****TA-395 Enhanced Maneuverability, 20-28 Guns****TA-396 Enhanced Maneuverability, 30-38 Guns**

Descriptive: Enhanced Maneuverability Capability allows a ship to change both course and speed during the same battle board turn. It is otherwise identical to the movement systems described on p.126 and p.128.

Designation: // as in 8//S.12, 6//Z.85, 7//DN.13, etc. (all 5 TAs use // to denote Enhanced Maneuverability; the only difference is in the size of the parent warship).

Prerequisite: TA-104 Gravity Deflector (p.164). Used only with the Mark II Advanced Movement System (p.126) or Mark III Advanced Movement System (p.128). TAs must be developed in numerical sequence.

Development Cost:	TA-392 – 96 MT	Must be developed in numerical sequence.
	TA-393 – 64 MT	
	TA-394 – 32 MT	
	TA-395 – 64 MT	
	TA-396 – 96 MT	

Item Cost: Adds percentage to a ship's base cost (p.130); this is *not* base 1 cost.

TA-392 – Adds 5% to base cost	All cargo-carrying ships use GU + guns = guns to calculate percentage. All other auxilliary types use TA-393.
TA-393 – Adds 10% to ship's base cost	
TA-394 – Adds 15% to ship's base cost	
TA-395 – Adds 20% to ship's base cost	
TA-396 – Adds 25% to ship's base cost	

When inoperable: Destroyed as a TA (Damage Table, p.133). A ship with its // destroyed reverts to normal maneuverability capabilities as described on p.128.

Narrative: A ship with // can change both course and speed during the same battle board turn. It is otherwise identical to the movement systems described on p.126 and p.128.

Super Enhanced Maneuverability, All Ships

Super Enhanced Maneuverability, designation ///, is the same as Enhanced Maneuverability, designation //, except that the number of engines required is halved (chart below) and the cost doubled (chart above). There is no TA development cost for the ///.

Speed 1 to 10

- Each speed change of 1 requires 2 engines.
- Each 45° turn requires 1 engine.

Speed 11 to 20

- Each speed change of 1 requires 2 engines.
- Each 45° turn requires 2 engines.

Speed 21 to 30

- Each speed change of 1 requires 2 engines.
- Each 45° turn requires 4 engines.

TA-397 Mark I Fleet Formation Keeper

Descriptive: The Fleet Formation Keeper reduces the random scattering effect during warp in described on p.122, Warping Onto Battle Board.

Designation: f as in 8/CS.12f, 10/CB.85f, 6/DR.13f, etc.

Prerequisite: None

Development Cost: 32 MT

Item Cost: 8 MT – May be mounted on any ship with 5 or more guns and warp drive.

When inoperable: Destroyed as a TA (Damage Table, p.133).

Narrative: When ships warp into a solar system, a die roll (p.122) determines the direction of entry. The f-carrying ship selects the direction of entry for itself and 1 other friendly ship in the same fleet. The 2 ships must be together both before and after warp in. The other ship may be of any type and does not have to carry the f. Remaining ships that may be in the fleet must roll for direction of entry before the f-ship and its companion select their entry. In all cases, the fleet with an f selects entry points after the opponent. If both opponents have equal marks, the sides will take turns placing their ships as per rules on p.122. A standing fleet is never affected regardless of mark carried by either opponent.

TA-398 Mark II Fleet Formation Keeper

Descriptive: Same as the Mark I.

Designation: ff as in 8/CS.12ff, 10/CB.85ff, 6/DR.13ff, etc.

Prerequisite: TA-397 Mark I Fleet Formation Keeper

Development Cost: 16 MT

Item Cost: 8 MT – May be mounted on any ship with 5 or more guns and warp drive.

When inoperable: Destroyed as a TA (Damage Table, p.133).

Narrative: Same as the Mark I, except that the ff-carrying ship can group as many as 8 friendly ships, including itself, from the same fleet.

The Mark I is automatically upgraded to the Mark II when the parent ship lands for 1 battle board turn on the planet of value of a friendly production center star.

TA-399 Mark III Fleet Formation Keeper

Descriptive: Same as the Mark I.

Designation: fff as in 8/CB.12fff, 10/BB.85fff, 6/Z.13fff, etc.

Prerequisite: TA-398 Mark II Fleet Formation Keeper

Development Cost: 128 MT

Item Cost: 50 MT – Must be on a warship with 9 or more long guns and warp drive.

When inoperable: Destroyed as a TA (Damage Table, p.133).

Narrative: Same as the Mark II, except that the fff-carrying ship, whether standing or warping in, can select the entry direction for any number of friendly or hostile ships or fleets warping into a star the same year. Contents of entering fleets are revealed before placement on the battle board. Each ship's or fleet's direction of entry is selected by the fff-ship. Hostile forces must be placed at range 48 to 56 from each other.

- Lack of an fff on any warping in or standing ships causes random entry, p.122.

- Opposing fleets with *equal* marks of their *best* fff revert to random entry, p.122.

Fleets with a lesser mark also warp in randomly. All standing ships are unaffected.

- Only 1 superior fff on any fleet warping in or standing is sufficient to control the warp in actions of all friendly or hostile ships/fleets. Hostile standing ships are unaffected.

- Weak ships can be protected against the fff by using TAs 1167-1169 Padlock, p.449.

The Mark II is not upgradeable to the Mark III. A Mark II can be discarded, sold, junked or moved to another ship (see TA-270 Repair Ship, p.199). TA-1140 Mark IV f⁴ is on p.449.

Chapter 14



Fortresses



TA-400 Moon Fortress

Descriptive: A Moon Fortress is a land-mounted gun emplacement sited on 1 or more of the moons orbiting the planet of value of a production center star.

Designation: MF as in MF.8, MF.16, MF.24 or MF.32 (the numbers reveal the number of 8-gun modules making up that MF. The moon on which an MF is located is selected by the defender prior to battle.

Prerequisite: None, except TAs must be developed before they can be mounted.

Development Cost: 16 MT

Item Cost: 25 MT per 8-gun module. Add 3 MT to the cost for TAs 380-382 Marks I-III Range Finder (p.228). TAs 701 and 702 Marks I and II Anti-Hallucination Projector (p.307) cost 8 MT each. TAs 810, 811 and 812 Marks I, II and III Anti-Sub-Warp Drive (p.312) cost 8 MT each. TA-344 Armored Warships – TAs (p.217) can be mounted for 3 MT per module (must be on all modules if mounted). Each TA is mounted on an 8-gun module, which always takes damage last, but the TA works for all modules. The MF can carry no other TAs.

When inoperable: Hull, engine and bridge hits count as misses. The rf, rl, (hp), (shp), (i), (ii) or (iii) do not take TA damage until the last 8-gun module begins to take damage. The MF cannot be hulked.

Narrative: The Moon Fortress is always emplaced on 1 or more of the moons orbiting the planet of value at a production center star. Built on year 1 of a Cycom, like a ship, and available (before warp in/out) on year 1 of the following Cycom, like a ship.

The MF always has 8 guns that can fire to range 44 in any direction off any size moon. Defense is doubled because it is embedded in solid rock; e.g., 4 attack/4 defense counts as 4 attack/8 defense in battle. Up to 4 MF may be clustered on a single moon. Multiple MF can combine fire to form a single attack factor and single defense factor; e.g., 4 MF can fire as 16 attack/32 defense. Damage is always scored first against 8-gun modules *without* TAs. Only gun and TA hits score damage on an MF; other hits (hull, engines, or bridge) count as misses. No weapon except ship-borne guns, TA-410 Moon Buster, p.237, TA-1111 series of Moon-Crater Bomb, p.444, and the TA-480 series of Toss Torpedo, p.262, can attack it.

The location and number of MF on a moon are immediately visible to any ship warping onto the battle board. Ships will not warp in closer than range 50 from an MF.

The planet of value cannot be attacked until all MFs have been destroyed. A damaged MF is automatically repaired at no cost from 1 year to the next. The MF installations cannot be repaired if any enemy ship with 5 or more operable guns remains on the battle board after a battle is concluded.

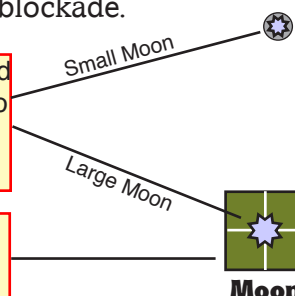
No special equipment is required to emplace an MF on a moon; planetary shuttle craft are always available. The MT cost of an MF must be assigned against the industrial capacity of the production center star at which it is located.

The TAs on a dormant MF cannot be upgraded if the star is under blockade.

The TAs on an active MF are automatically upgraded as to mark even during a blockade as long as there is no extra cost. TAs cannot be added to an MF under blockade until the Cycom after the blockade is broken. TAs can be shuffled among MF, OMF and PF between years, but only if legal for new host.

A Moon Fortress is always placed in the center of a moon. Begin to count range from the outer edge of the moon.

TA-410 Moon Buster (p.237) can attack the MF if the asteroid hits any portion of the large moon.



TA-401 Super Moon Fortress

Descriptive: A Super Moon Fortress is a land-mounted gun emplacement sited on 1 or more of the moons orbiting the planet of value of a production center star. The Super can mount torpedoes in addition to the TAs allowed for the MF.

Designation: MF as in MF8***, MF16åååå, MF24++++++ or MF32••, etc. The numbers reveal the number of 8-gun modules making up that MF, which is followed by the designation for the torpedo it carries, which is what makes it a Super. Torpedoes are installed per 8-gun module, which must be specified and recorded by the owner.

Prerequisite: TA-400 Moon Fortress and any TAs mounted by the Super MF.

Development Cost: 4 MT

Item Cost: 25 MT per 8-gun module plus the cost as indicated below of any TA weaponry added.

- TA-372 Fighter Bay Modules can be mounted on a Super Moon Fortress.
- Add 3 MT to cost if TAs 380-382 Marks I-III Range Finder are installed. Only 1 rf can be mounted per MF regardless of the number of 8-gun modules.
- TAs 701 and 702 Marks I and II Anti-Hallucination Projector cost 8 MT each. Only 1 (hp) or (shp) per MF regardless of the number of 8-gun modules.
- TAs 810-813 Marks I-IV series of Anti-Sub-Warp Drive cost 8 MT each. Only 1 (i), (ii), (iii) or (iiii) per MF regardless of the number of 8-gun modules.
- Torpedoes are installed by 8-gun modules. Torpedo types can be mixed between 8-gun MF modules. Same-type torpedoes on multiple modules can combine their attack.

– TA-450 series of Unguided Torpedoes	Installed at half cost
– TA-1290 series of Thunder Torpedo	Installed at full cost
– TA-460 series of Phytan Torpedoes	do.
– TA-470 series of Homing Torpedoes	Installed at full cost
– TA-480 series of Toss Torpedoes	NOT AVAILABLE
– TA-490 series of Asteroid Torpedo	1 MT per gun/4 per gun
– TA-500 series of Meandering Medusa	6 MT per missile
– TA-509 Super Meandering Medusa	8 MT per missile
– TA-530 series of Gravity Bomb Torpedo	4 MT per missile
– TA-510 series of Negative Energy Torpedo	Installed at half cost
– TA-520 series of Electromagnetic Burst Torpedo	do.
– TA-540 series of Dislocation Torpedo	Installed at full cost
– TA-553 Mark IV White Hole Torpedo & later	Installed at half cost
– TA-563 Mark IV Time Stasis Torpedo & later	do.
– TA-572 MineTorp	do.

When inoperable: Hull, engine and bridge hits count as misses. The rf, rl, (hp), (shp), (i), (ii) or (iii) take TA damage as soon as the MF's last 8-gun module begins to take hits. Torpedoes mounted by 8-gun modules are destroyed along with their parent module. Modules without torpedoes take damage first.

Narrative: Same as TA-400 Moon Fortress except for the additional TAs it can mount. Gun range remains at 44. Pertinent rules for each TA apply, which may pose awkward limits on the use of some of these TAs. An MF does not carry deflectors.

The Torpedo Gatling capability can be added to a Super Moon Fortress, but if mounted, no more than 16 torpedoes may be salvoed per battle board turn at 1 target.. The Torpilleur Capability also is available to a Super MF.

TA-410 Moon Buster

Descriptive: The Moon Buster technology reinforces the hull of a large warship to enable it to nudge a hefty asteroid out of orbit. The ship uses its battle board engines to shove the 100-yard diameter rock into collision with a Moon Fortress or SuperFortress.

Designation: mb as in 8/CB.49mb, 7/BB.50mb, 6/DR.51mb, etc.

Prerequisite: None

Development Cost: 4 MT

Item Cost: 1 MT per gun. Available to any 10-gun warship or larger. The ship must be capable of warp and battle board speed of 6 or more.

When inoperable: A warship may not use its mb capability if it has suffered any hull damage (Damage Table, p.133). The mb may be used once per year per ship.

Narrative: An mb-equipped ship can nudge an asteroid into a collision with TA-400 series Moon Fortress, p.235-236, TA-1000 series of Planetary Fortress, p.429-430, or TA-1370 SuperFortress, p.485, but not a TA-420 series of OMF, p.238-241. The procedure is:

1. Fleet warps into a star with Moon Fortress protection. The mb-ship devotes the year of warp in locating a suitable asteroid of the right mass. The mb-ship cannot warp in and attack during the same year. The mb-ship attacks the year *after* warp in.
2. The year following warp in, the mb-equipped ship moves to a point 1,000 battle board squares south of the planet of value. Other ships may accompany the mb-ship. This movement is done at speed 6, which consumes 158 or more battle board turns.
3. The mb-ship approaches asteroid at speed 1 until it stops 1 square behind asteroid.
4. The mb-ship will accelerate itself and the asteroid by speed 1 increments until they reach speed 6. Course/speed adjustments will be made normally. If the Mark II Movement System (p.126) is used, Jinking Juice will be consumed at twice the usual rate.
5. After approximately 164 battle board turns, the mb-ship will guide the asteroid to range 48 to 56 from the targeted fortress. At this point, the asteroid must be approaching in a straight line at speed 6 along 1 of the 8 directions from the moon. The mb-ship must remain in full defensive mode (cannot use weapons) while guiding the asteroid, but is allowed to break free of the asteroid to fight an attacker. If so, the asteroid will drift at speed 6; the mb-ship cannot reconnect. The asteroid provides cover for the mb-ship against TA-450-453 Marks I-IV Unguided Torpedoes, TA-460 series of Phyton Torpedoes and TA-480-483 Marks I-IV Toss Torpedoes.
6. The mb-ship releases the speed 6 asteroid at range 2 to 56. The attack factor vs. the SF, MF or PF is (each hit kills 1 gun; X = kill; see Hits Table, p.133):

<u>Die roll vs. SF:</u>	1, 2 = 7:1 attack 3, 4 = 6:1 attack 5, 6 = 5:1 attack	Release range 61+ = Miss Release range 49-60 = Odds decrease by 4 Release range 21-48 = Odds unchanged Release range 2-20 = Odds increase by 1
<u>Die roll vs. MF:</u>	1, 2 = 12:1 attack 3, 4, 5 = 6:1 attack 6 = Miss	
<u>Die roll for PF:</u>	1 = Miss 2, 3, 4, 5, 6 = Kill	

A defending fleet can:

- Destroy an incoming asteroid by putting an mb-asteroid of its own on a 90° or 180° collision course. A defending ship with an asteroid can stand at the planet of value from Cycom to Cycom. The defender starts at battle board speed 6.
- Use a TA-377a, b, c Marks I, II, III Heliostatic Hellfire Machine (p.226) to destroy the Moon Buster by hitting it with 2 bolts of hellfire on consecutive battle board turns.
- Cause approaching mb to hit 8 or more Asteroid Torpedoes, leaving mb-ship unhit.

TA-420 Orbital Moon Fortress

Description: An Orbital Moon Fortress is a gun emplacement sited in a large asteroid. Several are moved to an orbit near a production center's planet of value using cheap chemical rockets installed by solar system shuttle craft. Relocation within a solar system is free.

Designation: OMF.16 Alphabetically add lower case letters to differentiate, as in OMF.16a, etc.

Prerequisite: TA-340.14 14-16 Gun Warships.

Development Cost: 32 MT

Item Cost: 60 MT. Add 6 MT to the cost if TAs 380-382 Marks I-III Range Finder (p.228) are installed. TAs 701 and 702 Marks I and II Anti-Hallucination Projector (p.307) cost 8 MT each. TAs 810, 811 and 812 Marks I, II and III Anti-Sub-Warp Drive (p.312) cost 8 MT each. TA-344 Armored Warships – TAs (p.217) can be mounted for a cost of 12 MT. The OMF can mount most torpedoes, which see below for availability and cost modifiers. No other TAs allowed.

When inoperable: When last long gun is destroyed. OMF debris is harmless, invisible.

Narrative: The OMF carries 16 long guns (range 44) of double defense and 16 short guns. The Orbital Moon Fortress is always placed in orbit around the planet of value or any moon of a production center star at a Main Sequence Star, Dead Dwarf Star or the Geode Moon Base of a Multiple Star. They are placed at range 1 to 40 from the planet of value or any moon with at least range 3 separating each OMF. No more than 16 may be at a star. They are sited by the owner after an enemy force warps in. The location of an OMF is immediately visible to any ship warping onto the battle board. Ships will not warp in closer than range 50 to an OMF. OMF do not move.

The OMF can fire 16 long guns of double defense to range 44 in any direction. It also has 16 short guns that fire at double strength to range 20. 1 short gun is lost for each long gun destroyed. Defense is doubled; e.g., 8 attack/8 defense (long guns only) counts as 8 attack/16 defense in battle.

The OMF can carry TAs listed under Item Cost, above, and most torpedoes with or without torpilleur capability and TA-490 Torpedo Gatling. An OMF can carry up to 2 types of torpedoes mounted in banks of 8. Torpedoes are lost as a TA in banks of 8; the second bank cannot be lost until an OMF loses 8 guns:

– TA-450 series of Unguided Torpedoes	Installed at half cost
– TA-1290 series of Thunder Torpedo	Installed at full cost
– TA-460 series of Phyton Torpedoes	do.
– TA-470 series of Homing Torpedoes	Installed at full cost
– TA-480 series of Toss Torpedoes	NOT AVAILABLE
– TA-490 series of Asteroid Torpedo	1 MT per gun/4 per gun
– TA-500 series of Meandering Medusa	6 MT per missile
– TA-509 Super Meandering Medusa	8 MT per missile
– TA-530 series of Gravity Bomb Torpedo	4 MT per missile
– TA-510 series of Negative Energy Torpedo	Installed at half cost
– TA-520 series of Electromagnetic Burst Torpedo	do.
– TA-540 series of Dislocation Torpedo	Installed at full cost
– TA-553 Mark IV White Hole Torpedo & later	Installed at half cost
– TA-563 Mark IV Time Stasis Torpedo & later	do.
– TA-572 MineTorp	do.
– TA-1290 series of Thunder Torpedo	Installed at full cost

An OMF can be attacked by guns, TA-421 Suicide Moon Fortress, p.240, TA-1111 series of Moon-Crater Bomb, p.444, TA-1247 series of Moon Mush Cyclops, p.468, TA-1411 Suicide Gig, p.491, or certain high-mark torpedoes as specified. Only gun, TA and “ship explodes” hits score damage on an OMF; all other hits (hull, engines, bridge) count as misses.

The planet of value cannot be attacked until all defending fortresses have been destroyed.

Built on year 1 of a Cycom, like a ship, and available on year 1 of the following Cycom. An OMF is automatically repaired at no cost from 1 year to the next.

- The TAs on a dormant OMF cannot be upgraded if the star is under blockade.
- The TAs on an active OMF are automatically upgraded as to mark even during a blockade as long as there is no extra cost.
- TAs cannot be added to an OMF under blockade until the Cycom after the blockade is broken.
- TAs can be shuffled among MF, OMF and PF between years, but only if legal for the new host and as long as there is no blockade.
- TA-372 Fighter Bay Modules and HS go dormant with parent OMF during a blockade. Heavy Scouts that would go dormant can be supported elsewhere during a blockade only if there are *vacant* Fighter Bay Modules. Doubling up is not allowed.

TA-421 Suicide Moon Fortress

Descriptive: The Suicide Moon Fortress is the same as the Orbital Moon Fortress, except that it is structurally reinforced at modest extra cost so that it can be towed by a TA-290 Tow Ship (p.202). The SMF has an indoctrinated crew who collectively believe that suicide bombing on a grand scale is the only way to change the behavior of alien beings.

Designation: SMF as in SMF.43, SMF.44, SMF.71, etc. (the .43, .44, .71 are the hull numbers). Frequently referred to as SMF8.

Prerequisite: TA-420 Orbital Moon Fortress.

Development Cost: 4 MT

Item Cost: 80 MT. The SMF can carry the same TAs as the TA-420 OMF (p.238).

When inoperable: When all guns are destroyed. The SMF disintegrates into boulders, rocks, gravel, sand, dust, vapor and flash frozen bodies when it loses its last gun. The debris is harmless and invisible on the battle board.

Narrative: The 8-gun SMF is similar to the OMF except that it can be towed by a TA-170 Tow Ship (p.202). Tow speed is always 4, both under warp movement or on the battle board. The Tow Ship may release the SMF at any range or direction of travel the battle board turn after warping in. The SMF may use its weapons/defense the turn following its release by the TS.

The Tow Ship will always release the SMF at speed 4. Once released, the SMF must travel in a straight line. The SMF will be aimed so as to drift through a solar system in an effort to disrupt an enemy's battle tactics, although a suicide run may be more effective.

The SMF can be placed on a collision course with an MF, OMF or TA-430 Geode Moon Base and hit it with 100% accuracy because the SMF has a suicide crew and maneuvering rockets. The SMF must have 1 or more guns remaining at the time of collision for the collision to be successful. The GMB, SMF and OMF or entire MF (all 8-gun modules) will be destroyed in such a collision. The SMF also will be destroyed if it hits another SMF (100% accuracy), the planet of value, a moon, ring, radiation belt or any other celestial object.

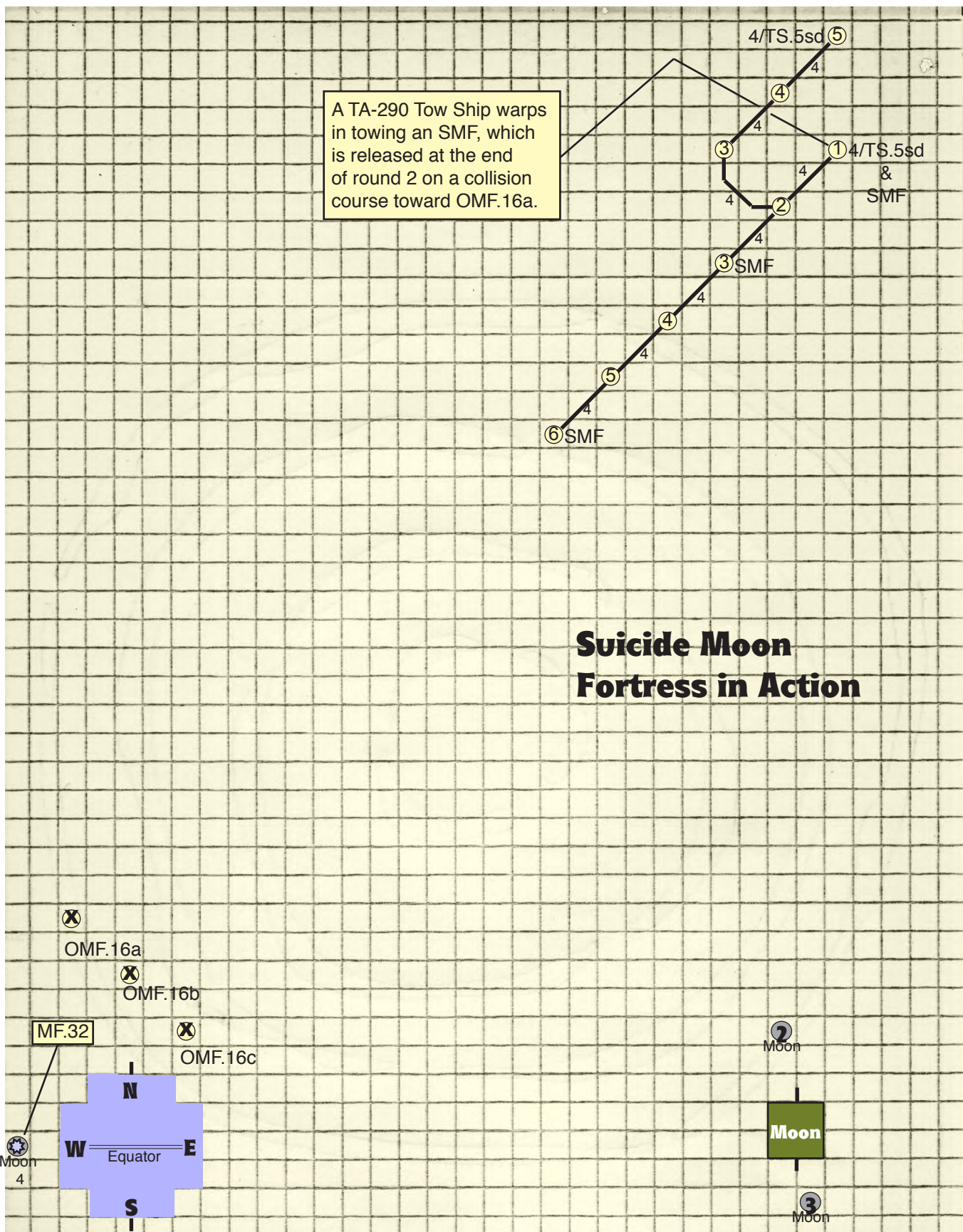
No weapon except guns can attack the SMF, although attackers can use their torpedoes to negate the SMF's torpedoes. An SMF is *not* affected by a torpedo hit. Only gun and TA hits score damage on an SMF; all other hits (hull, engines, bridge) count as misses.

An SMF is unharmed by a collision with a ship, but will destroy a ship of any size. The SMF is lost if it is left to drift from 1 year to the next. It does not go into geosynchronous orbit as would a hulked ship.

A TS may move an SMF to an OMF's orbital location. The SMF will gain 8 guns at no cost the year after installation and become a 16-gun OMF. The resulting OMF can never again be towed or transported.

The Extremely Large Merchant (XL), p.203, can carry 1 SMF. No other merchant can. An SMF installed by an Extremely Large Merchant becomes effective the Cycom after installation.

Note that the SMF can be emplaced to protect a TA-33-36 Orbital Hamlet, Orbital Village, TA-34 Orbital City or Orbital Metropolis, all p.153. The SMF must be destroyed before the OH/OV/OC/OM star's GU can be attacked.



TA-430 Mark I Geode Moon Base

Descriptive: The Mark I Geode Moon Base is a hollowed out rogue moonlet that contains factories, which can be protected by a TA-420 Orbital Fortress (p.238). It is located in any triple, quadruple, pentuple, sextuple or cluster star system where swirling masses of rogue moons, asteroids, comets, planetoids, rocks, moonlets, Kuiper belt debris, dust, gases, frozen corpses and interstellar rubbish choke the star system in a dangerous mishmash of unstable orbits and cataclysmic collisions. Fusion-powered factories consume the moonlet itself as a fuel source. This TA is the mining technology to hollow out a moonlet.

Designation: GMB

Prerequisite: TA-421 Suicide Moon Fortress (p.240) and
TA-110 Super Deflector (p.165).

Development Cost: 64 MT

Item Cost: Total cost is 16 FY and 8 GU plus 1 PU. Transportation must be provided by any fleet of merchants with carrying capacity of 24 GU or more. Fleet must include warship with 5 or more guns. Every ship must carry a TA-110 Super Deflector or better. May not be installed at a Binary Star; must be at a Trinary or greater.

When inoperable: An enemy ship that fires 5 or more guns at range 10 or less destroys the GU, rendering the Geode Moon Base neutral. All defenses, such as warships and/or Orbital Moon Fortresses, must be destroyed or chased away before the GU can be neutralized. A *completed* GMB can be reactivated by 1 GU dropped at a later date. An *incomplete* GMB facility is lost if any of the merchants required to complete the installation process warp out or are destroyed. Weapons cannot destroy a *completed* GMB. Note that TA-410 Moon Buster, p.237, may not be used against a GMB, nor may TA-1247 series of Moon Mush Cyclops, p.468. Battle board setup is illustrated on p.244.

Narrative: The Geode Moon Base functions much like a production center, except that the installation process takes more time. Installation of FY and GU can be voluntarily suspended at any point prior to completion of the GMB without loss of any FY or GU as long as those FY and GU are reloaded on the merchant ships prior to departure. Subsequent reinstallation of a GMB at that same location must start over from scratch.

All merchants must be present from start to finish of the GMB installation process. MT income and industrial capacity begin the Cycom after installation is complete. Example:

- Cycom 1, any year, fleet arrives at Multiple Star that is not a Binary.
- Cycom 2, fleet explores to find suitable rogue moonlet; 5-gun ship or larger required.
- Cycom 3, fleet unloads 8 GU and 16 FY. Construction of GMB begins.
- Cycom 4, Mark I Geode Moon Base is fully functional; production is 16 MT/year; industrial capacity is 2000 MT/Cycom; 7 GU are consumed, leaving 1 GU.

A TA-1030 series of Shipyard can be installed at a GMB. A GMB can conduct repairs.

Any 5-gun ship or larger that warps into a multiple star (excluding binaries) must spend the *following* Cycom of 4 years to locate an unfriendly GMB. Once located, subsequent visits to the GMB by the owner (only) of the GMB use normal warp in rules, p.122, using the GMB as the planet of value. Ships warp out directly from a GMB's location. Enemy ships always require 1 year after warp in to reach the GMB's location.

Ships defending GMB construction cannot detect or intercept a ship undertaking the 4-year GMB location routine. TA-1230 Target Tracking Station, p.461, provides a solution.

A player capturing a Mark I GMB also captures the technology (available next Cycom).

Income - Multiple Stars*

Katun:



Cycom:



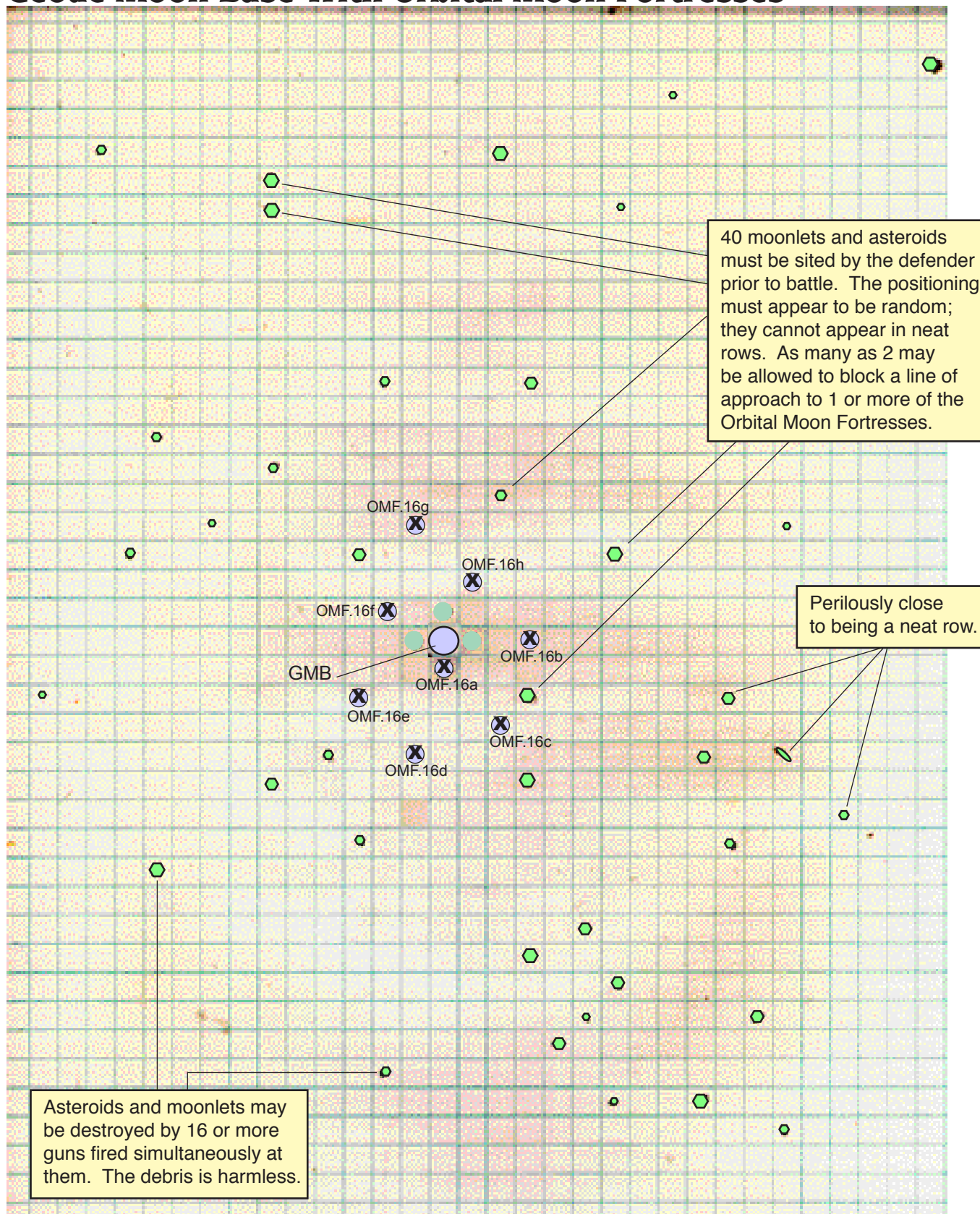
Empire: _____

[illegible]

* No Binaries

Total MT Earned
For Next Cycom:

Geode Moon Base With Orbital Moon Fortresses



TA-431 Mark II Geode Moon Base

Descriptive: Same as the Mark I Geode Moon Base except that the hollowed out moonlet can have Fortresses situated nearby.

Designation: GMB Same as the Mark I but with a listing of an added MF and/or PFs.

Prerequisite: TA-430 Mark I Geode Moon Base, p.242, TA-401 Super Moon Fortress, p.236, and TA-1001 Super Planetary Fortress, p.430.

Development Cost: 64 MT

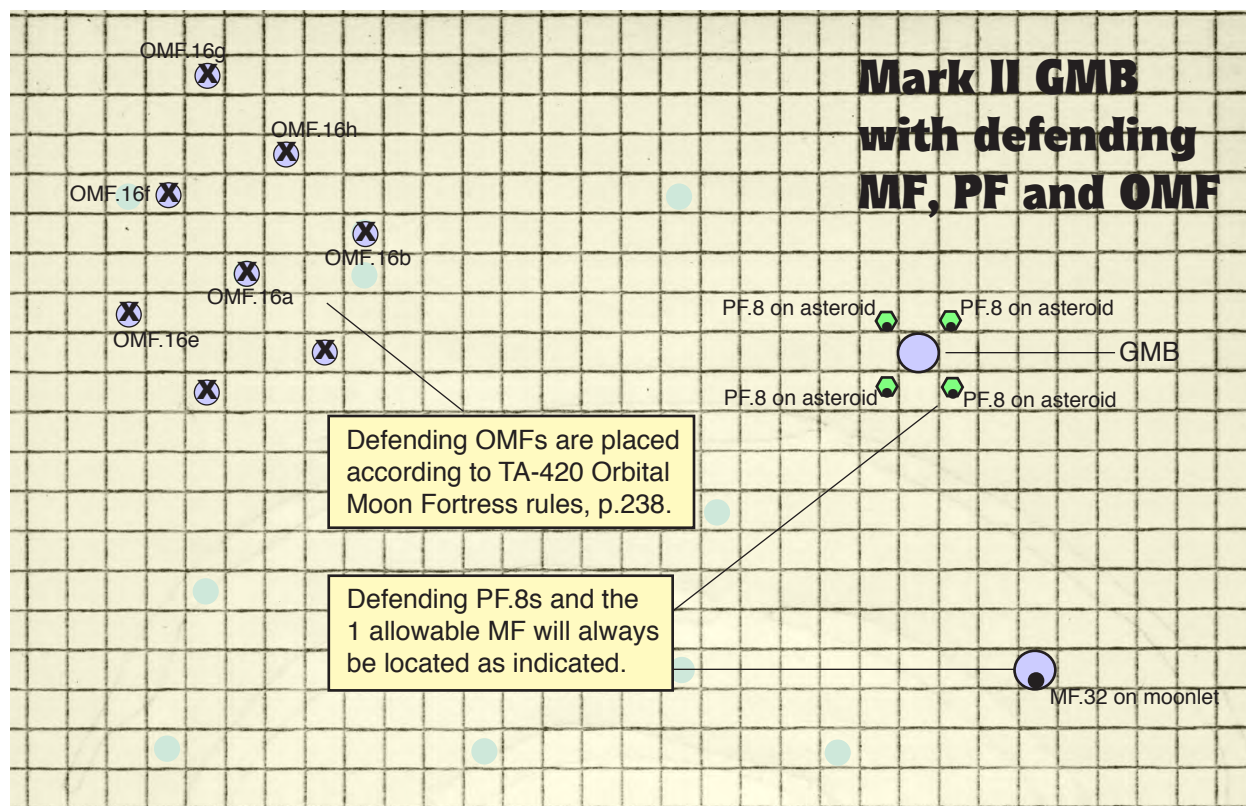
Item Cost: The Mark I automatically becomes a Mark II upon installation of a TA-401 Super Moon Fortress, TA-420 Orbital Moon Fortress or TA-1001 Super Planetary Fortress.

When inoperable: The Mark II GMB is neutralized or destroyed just as the Mark I GMB, which see for details.

Narrative: The Mark II Geode Moon Base is similar to the Mark I, except that the hollowed out moonlet can have a Moon Fortress (up to MF.32) and as many as 4 Planetary Fortresses situated on nearby orbiting asteroids or moonlets. A major change from the Mark I battle board is that all the free-roaming asteroids are either vaporized or pushed out of the area, except for those used by the Moon Fortress and/or Planetary Fortresses. Those used are placed in near orbit to the GMB as illustrated below.

TA-410 Moon Buster, p.237, is effective against a GMB's MF. The Planetary Fortresses cannot be blockaded (they're too close to the supporting GMB). The MF and OMF can be blockaded. TAs 1111-1117 Marks I-VII Moon-Crater Bomb is effective against a GMB's defending MF and/or PF. A hostile player capturing a Mark II GMB also captures the TA.

A damaged MF, PF or OMF is automatically repaired at no cost from 1 year to the next. The MF or OMF installations cannot be repaired under an ongoing blockade. A damaged PF is repaired at no cost from 1 year to the next regardless of enemy activity on the battle board.



Chapter 15



Torpedoes



TA-450 Mark I Unguided Torpedo

Descriptive: The Mark I Unguided Torpedo uses inertial guidance to travel in a straight line toward the target. Its warhead consists of a potent mix of fusion entropy, curvilinear magnetism, ultra-high frequency gravity waves, microscopic temporal disjunctivitis and a fermented imagination. The Unguided Torpedo may be the most effective torpedo.

Designation: * (asterisk) as in 5/CA.12*, 10/CS.85*, 8/S.6*, etc.

Prerequisite: None

Development Cost: 64 MT

Item Cost: 4 MT per torp/tube – Must be mounted on any warship with 1 to 10 guns.

When inoperable: Torpedo tubes are destroyed along with guns (p.133). Empty tubes are destroyed first.

Narrative: A ship carries 1 Mark I Unguided Torpedo for each gun on the ship (TA-335 Double-Gun Warships carry 1 torpedo per long gun). The Mark I has a range of 30 and an attack factor of 12 in the 8 squares around the exact location of the torpedo blast. The torpedo has a proximity fuse and will explode the instant it comes anywhere along its course within 1 square of:

- An approaching Unguided Torpedo of any mark
- Any planet, moon, ring or radiation belt
- Any ship (enemy or friendly)
- TA-130 series of Torpedo Interceptors (p.166)
- TA-490 series Asteroid Torpedo already in place

The torpedo must travel at least 4 movement factors before it is armed and able to explode. The torpedo's attack factor is computed against the target's total defense value after damage, if any, of previous turns and not whatever defense was assigned for that round.

Alternative Rule: The attack factor of all marks of Unguided-type Torpedoes may be computed against the target's original number of hull factors. Players must agree, however.

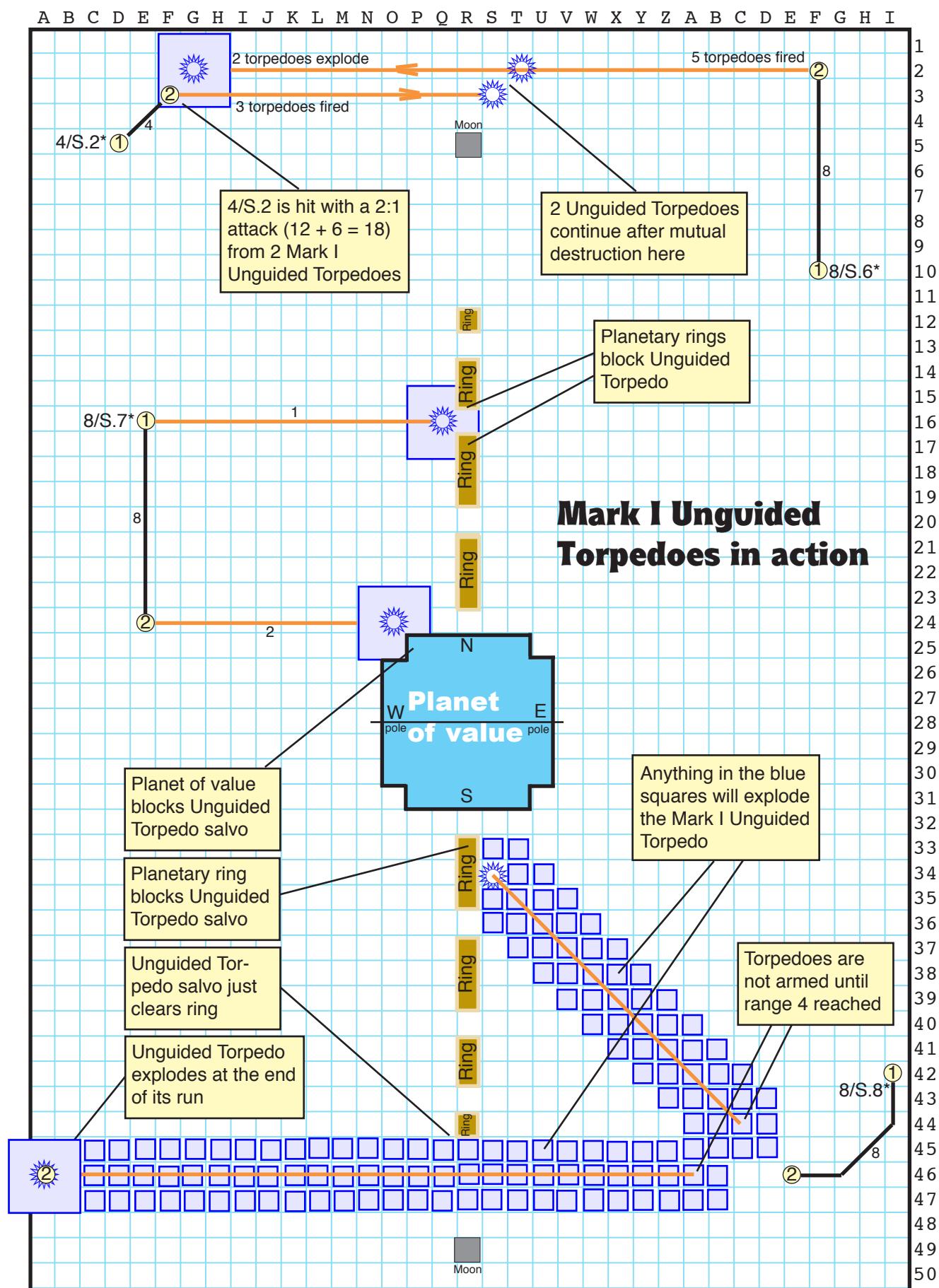
The Unguided Torpedo must travel along a straight line in any one of the 8 possible directions until it reaches its full range of 30 in its first move. The torpedo explodes when it comes within 1 square of a target or at the end of its run. The torpedo is fired after ship movement on the battle board is complete. See sequence of events chart on p.140.

A ship may fire Unguided Torpedoes at any number of targets. Any number of torpedoes may be fired from a ship at 1 target, all on the same track, but only 1 hit on the target will be scored. The target will fire its own Unguided Torpedos, if it has any, in defense. Equal numbers of opposing torpedoes will cancel. The ship that fired the most torpedoes hits the opponent. Examples: 7/CA.2* fires 6 of its complement of 8 torpedos and the opposing 5/S.3* fires 3 torpedoes, the CA will get 1 hit on the S. The total attack factor is 12. If the S had fired all 9 of its torpedoes, it would have gotten 1 hit on the CA.

Torpedo reloads are available only at a friendly production center star. Each Mark I Unguided Torpedo reload is free. No time is required to reload, just warp in, land on the planet of value for 1 battle board turn and warp out. A ship can transfer torpedoes to another ship.

A ship may carry only one type of torpedo.

The illustration on the next page depicts how this torpedo functions.



TA-451 Mark II Unguided Torpedo

Descriptive: See TA-450 Mark I Unguided Torpedo.

Designation: * (asterisk) as in 5/CA.12**, 10/CS.85**, 8/S.6**, etc.

Prerequisite: TA-450 Mark I Unguided Torpedo

Development Cost: 16 MT

Item Cost: 4 MT per torp/tube – Must be mounted on any warship with 1 to 10 guns.

When inoperable: Torpedo tubes are destroyed along with guns (p.130). Empty tubes are destroyed first.

Narrative: The operational characteristics of the Mark II are the same as the Mark I except that range is increased to 32 and the attack factor to 18. There is no automatic upgrading of existing Mark I's after the Mark II has been developed. A ship with Mark I's or earlier must warp into and out of a friendly production center star, after which the torpedoes are upgraded at no cost. No stopping time is required.

TA-452 Mark III Unguided Torpedo

Descriptive: See TA-450 Mark I Unguided Torpedo.

Designation: * (asterisk) as in 5/CA.12***, 10/CS.85***, 8/S.6***, etc.

Prerequisite: TA-451 Mark II Unguided Torpedo

Development Cost: 16 MT

Item Cost: 4 MT per torp/tube – Must be mounted on any warship with 2 to 12 guns.

When inoperable: Torpedo tubes are destroyed along with guns (p.133). Empty tubes are destroyed first.

Narrative: The operational characteristics of the Mark IV are the same as the Mark III except that the range is increased to 34, the attack factor to 24 and the platform requirement to at least 2 guns. There is no automatic upgrading of existing Mark II's after the Mark III has been developed. A ship with Mark II's or earlier must warp into and out of a friendly production center star, after which the torpedoes are upgraded at no cost. No stopping time is required. Ship size requirement must be respected.

TA-453 Mark IV Unguided Torpedo

Descriptive: See TA-450 Mark I Unguided Torpedo.

Designation: * (asterisk) as in 5/CA.12****, 10/CS.85****, 8/S.6****, etc.

Prerequisite: TA-452 Mark III Unguided Torpedo

Development Cost: 16 MT

Item Cost: 4 MT per torp/tube – Must be mounted on any warship with 2 to 12 guns.

When inoperable: Torpedo tubes are destroyed along with guns (p.133). Empty tubes are destroyed first.

Narrative: The operational characteristics of the Mark IV are the same as the Mark III except that the range is increased to 36 and the attack factor to 30. There is no automatic upgrading of existing Mark III's after the Mark IV has been developed. A ship with Mark III's or earlier must warp into and out of a friendly production center star, after which the torpedoes are upgraded at no cost. No stopping time is required.

TA-454 Mark V Unguided Torpedo

Descriptive: See TA-450 Mark I Unguided Torpedo.

Designation: * (asterisk) as in 5/CA.12*****, 10/CS.85*****, 8/S.6*****, etc.

Prerequisite: TA-453 Mark IV Unguided Torpedo

Development Cost: 48 MT

Item Cost: 4 MT per torp/tube – Must be mounted on any warship with 3 to 14 guns.

When inoperable: Torpedo tubes are destroyed along with guns (p.133). Empty tubes are destroyed first.

Narrative: The operational characteristics of the Mark V are the same as the Mark IV except that the range is increased to 38, the attack factor to 36 and the minimum platform requirement to a 3-gunner. Additionally, the Mark V has a time delay fuse that allows it to pass in near proximity to ships, moons, planets, radiation belts and rings without exploding. It will pass “through” a friendly or enemy ship, but not celestial objects.

The Marks V and VI Unguided Torpedoes *will* function as Marks I through IV for the purposes of canceling opposing torpedoes. The Mark V explodes when it is 1 square away from its designated target. The TA-130 series of Torpedo Interceptor (ti) capability is ineffective against the Mark V.

A ship with Mark IV's or earlier must warp into and out of a friendly production center star, after which the torpedoes are considered upgraded at no cost. No stopping time is required. Ship size requirement must be respected.

See illustration on p.251.

TA-455 Mark VI Unguided Torpedo

Descriptive: See TA-450 Mark I Unguided Torpedo.

Designation: ***** as in 5/CA.12*****, 10/CS.85*****, 8/S.6*****, etc.

Prerequisite: TA-454 Mark V Unguided Torpedo

Development Cost: 64 MT

Item Cost: 4 MT per torp/tube – Must be mounted on any warship with 4 to 14 guns. The Mark VI can be mounted on the 3-gun Yacht or Gunboat, but costs 8 MT per torp/tube.

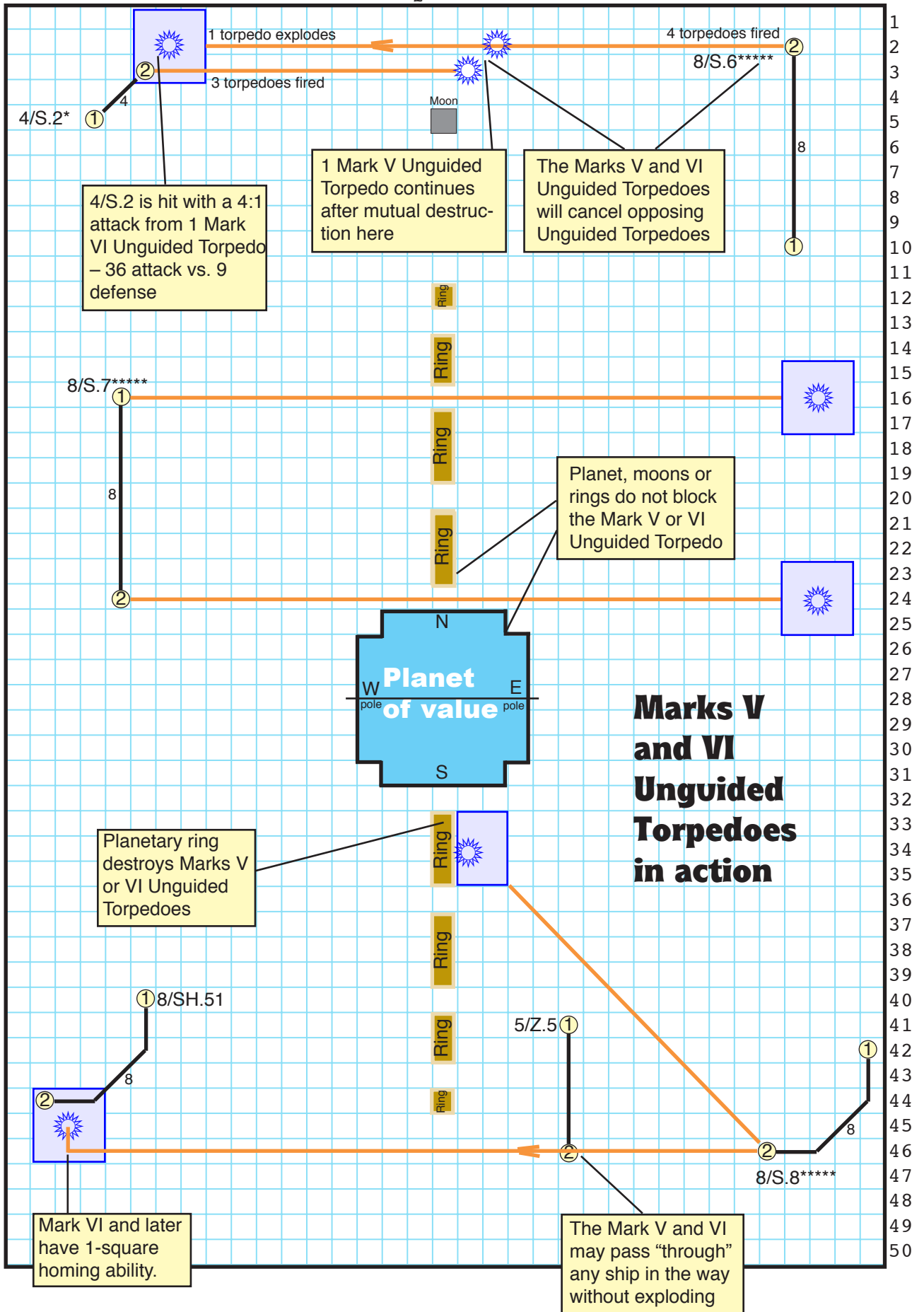
When inoperable: Torpedo tubes are destroyed along with guns (p.133). Empty tubes are destroyed first.

Narrative: The attack factor of the Mark VI is increased to 42 and the warhead is given a 1-square homing capability in addition to the time delay fuse. Otherwise, the Mark VI is operationally similar to the Mark V.

The 1-square homing capability means the Mark VI can alter its course at the end of its run to a target by 1 square to either side of its given course of travel. This allows it to hit a target it might otherwise miss. See illustration on p.252.

A ship with Mark V's or earlier must warp into and out of a friendly production center star, after which the torpedoes are considered upgraded at no cost. No stopping time is required. Ship size requirement must be respected.

TA-488 Mark VII Super Torpedo, and later marks, p.266.



TA-459 Torpilleur Capability (Unguided)

Descriptive: Allows a ship to carry twice the number of Unguided Torpedoes and tubes than it normally would.

Designation: (underline) as in 5/S.12 *****, 10/CS.85*****, etc.

Prerequisite: TA-453 Mark IV Unguided Torpedo

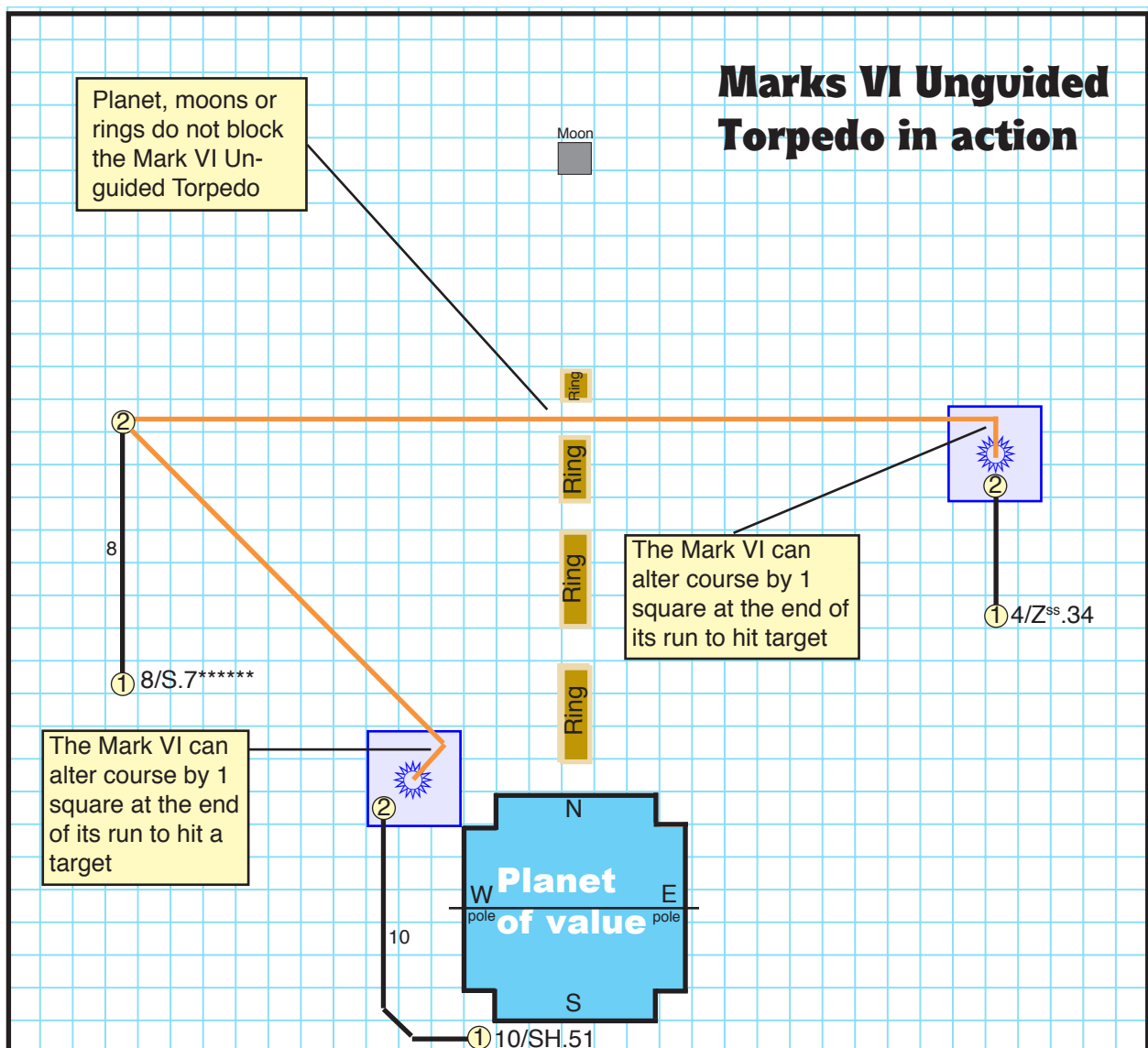
Development Cost: 4 MT

Item Cost: 8 MT for 2 torps and 2 tubes, e.g., 64 MT for an 8-gunner – May be mounted on any warship with 4 to 14 guns.

When inoperable: 2 torpedoes and 2 tubes are destroyed along with each gun (page 90). Empty tubes are destroyed first.

Narrative: A ship carries 2 torpedoes and 2 tubes for each gun. A ship may fire 2 full salvos on consecutive battle board turns, but not all torpedoes carried in 1 turn. All other operational characteristics of Unguided Torpedoes remain pertinent to the mark employed.

A ship upgraded to have Torpilleur Capability (Unguided) must land on the planet of value of a friendly production center star for 1 battle board turn, after which the ship is considered upgraded. No stopping time is required. The full 8 MT per tube must be paid for the upgrade. The ship size requirement must be respected.



TA-460 Mark I Phyton Torpedo

Descriptive: The Mark I Phyton Torpedo is an exploding antimatter energy ball whose power depends on the size of the ship firing it. A warship sweeps up antimatter to recharge its torpedoes from the interplanetary phytosphere, hence its name. This torpedo is a powerful weapon for mid- and late-game empires of aggressive tendencies.

Designation: + (plus sign) as in 6/P.11+, 10/Z.86+, 8/DN.7ad|rd|td|+, etc.

Prerequisite: TA-340.10 Big Warships (p.215) and later marks as needed

Development Cost: 96 MT

Item Cost: 4 MT per gun – Must be mounted on a ship with 9 or more guns.

When inoperable: Torpedo tubes are destroyed along with guns (p.133).

Narrative: A ship carries 1 Mark I Phyton Torpedo for each gun on the ship (TA-335 Double-Gun Warships carry 1 torpedo per long gun). The Mark I has a range of 30 and an attack factor of 1 per remaining gun on the firing ship. If opponents both carry the Phyton torpedo, subtract the smaller attack factor from the larger. The lesser attack is lost and the greater attack proceeds to the target at reduced strength. Example: 7/DR.32+ fires a Phyton Torpedo with an attack factor of 16 at 8/S.44+, which fires its own Phyton with an attack factor of 9. 16 minus 9 = 7. The 7/DR's Phyton hits the 8/S with an attack of 7. The 7/DR is not hit.

The Phyton explodes in the 8 squares around the exact location of the torpedo's antimatter blast. It fires every other turn and only a single target may be attacked each time it fires.

Antimatter has a high sensitivity to the proximity of matter and will explode the instant it comes anywhere along its course within 1 square of:

- An approaching Phyton Torpedo of any mark
- Any planet, moon, ring or radiation belt
- Any ship (enemy or friendly)
- TA-130 series of Torpedo Interceptor
- TA-490 series of Asteroid Torpedo already in place
- It does *not* interact with the TA-450 series of Unguided Torpedoes, the TA-480 series of Toss Torpedoes, or the TA-500 series of Meandering Medusa.

The torpedo must travel at least 4 movement factors before it is armed and able to explode. The torpedo's attack factor is computed against the target's total defense value after damage, if any, of previous turns and not whatever defense was assigned for that round. Added defense for speed is not used.

The Phyton Torpedo must travel along a straight line in any one of the 8 possible directions until it reaches its full range of 30. The torpedo is fired after ship movement on the battle board is complete. See sequence of events chart on p.140.

The Phyton Torpedo's antimatter energy ball may be partly neutralized by the target firing back with its own Phyton Torpedo. Equal numbers of opposing torpedos will cancel. The strongest Phyton Torpedo will continue with its remaining strength to hit the target. Examples: 7/P.3+ fires its 16-power Phyton at 8/CB.4, which fires back with its 10-power Phyton. The P's Phyton is 6 stronger than that of the CB, which results in an attack of 6:10 (factored to 3:5) against the CB.

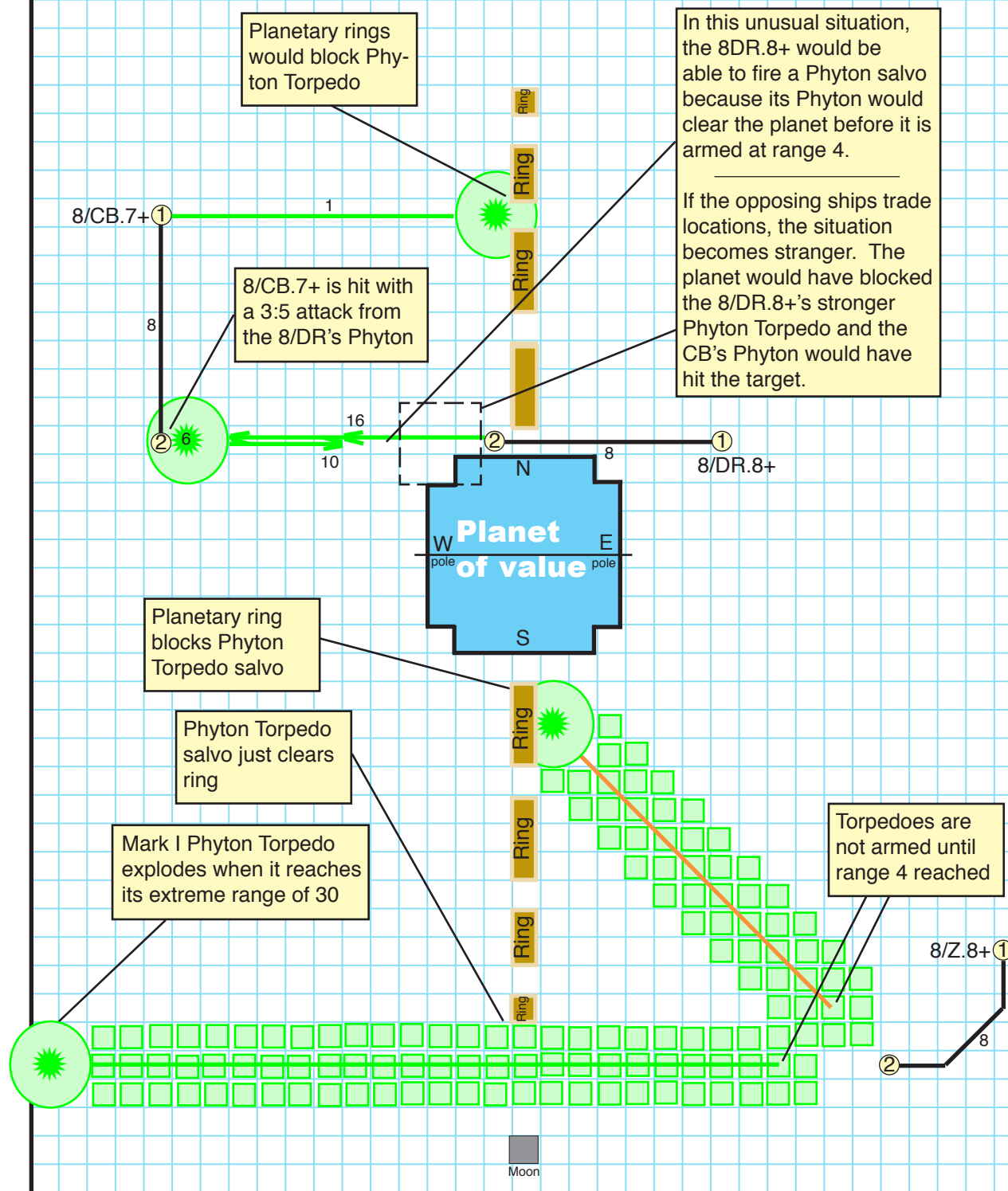
A ship may carry only one type of torpedo.

The illustration on the next page depicts how this torpedo functions.

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z A B C D E F G H I

Note to drawings: Contrary to what is shown here to illustrate various rules, the Mark I Phyton Torpedo fires once every other turn and at only 1 target when it fires

Mark I Phyton Torpedoes in action



TA-461 Mark II Phyton Torpedo

Descriptive: Same as TA-460 Mark I Phyton Torpedo.

Designation: ++ as in 6/P.11++, 10/Z.86++, 8/DN+.7ad|rd|td|++, etc.

Prerequisite: TA-460 Mark I Phyton Torpedo

Development Cost: 16 MT

Item Cost: 4 MT per gun – Must be mounted on a ship with 9 or more guns.

When inoperable: Torpedo tubes are destroyed along with guns (p.133).

Narrative: The operational characteristics of the Mark II are the same as the Mark I except that the range is increased to 32. There is no automatic upgrading of existing Mark I's after the Mark II has been developed. A ship with Mark I's must warp into and out of a friendly production center star, after which the torpedoes are considered upgraded at no cost. No stopping time is required.

TA-462 Mark III Phyton Torpedo

Descriptive: Same as TA-460 Mark I Phyton Torpedo.

Designation: +++ as in 6/P.11+++, 10/Z.86+++, 8/DN+.7ad|rd|td|+++, etc.

Prerequisite: TA-461 Mark II Phyton Torpedo

Development Cost: 32 MT

Item Cost: 4 MT per gun – Must be mounted on a ship with 9 or more guns.

When inoperable: Torpedo tubes are destroyed along with guns (p.133).

Narrative: The operational characteristics of the Mark III are the same as the Mark II except that the weapon can be fired every turn (instead of every other turn). There is no automatic upgrading of existing Mark II's after the Mark III has been developed. A ship with Mark II's or earlier must warp into and out of a friendly production center star, after which the torpedoes are considered upgraded at no cost. No stopping time is required.

TA-463 Mark IV Phyton Torpedo

Descriptive: Same as TA-460 Mark I Phyton Torpedo.

Designation: ++++ as in 6/P.11++++, 10/Z.86++++, 8/DN+.7ad|rd|td|++++, etc.

Prerequisite: TA-462 Mark III Phyton Torpedo

Development Cost: 32 MT

Item Cost: 4 MT per gun – Must be mounted on a ship with 9 or more guns.

When inoperable: Torpedo tubes are destroyed along with guns (p.133).

Narrative: The operational characteristics of the Mark IV are the same as the Mark III except that range is increased to 34 and the attack factor is increased to 1.5 per remaining gun (drop fractions) on the firing ship. There is no automatic upgrading of existing Mark III's after the Mark IV has been developed. A ship with Mark III's or earlier must warp into and out of a friendly production center star, after which the torpedoes are considered upgraded at no cost. No stopping time is required.

TA-464 Mark V Phyton Torpedo

Descriptive: Same as TA-460 Mark I Phyton Torpedo.

Designation: ++++++ as in 6/P.11+++++, 8/Z⁺.7ad|rd|td|+++, etc.

Prerequisite: TA-463 Mark IV Phyton Torpedo

Development Cost: 8 MT

Item Cost: 4 MT per gun – Must be mounted on a ship with 9 or more guns.

When inoperable: Torpedo tubes are destroyed along with guns (p.133).

Narrative: The operational characteristics of the Mark V are the same as the Mark IV except that the range is increased to 38 and the attack factor is increased to 2 per remaining gun on the firing ship. . There is no automatic upgrading of existing Mark IV's after the Mark V has been developed. A ship with Mark IV's or earlier must warp into and out of a friendly production center star, after which the torpedoes are considered upgraded at no cost. No stopping time is required.

TA-465 Mark VI Phyton Torpedo

Descriptive: Same as TA-460 Mark I Phyton Torpedo.

Designation: ++++++ as in 6/P.11+++++, 8/Z⁺.7ad|rd|td|+++++, etc.

Prerequisite: TA-464 Mark V Phyton Torpedo

Development Cost: 32 MT

Item Cost: 4 MT per gun; mounted on a ship with 8 or more guns.

When inoperable: Torpedo tubes are destroyed along with guns (p.133).

Narrative: The operational characteristics of the Mark VI are the same as the Mark V except that the attack factor is increased to 3 per remaining gun on the firing ship. There is no automatic upgrading of existing Mark V's after the Mark VI has been developed. A ship with Mark V's or earlier must warp into and out of a friendly production center star, after which the torpedoes are considered upgraded at no cost. No stopping time is required.

TA-130 series of Torpedo Interceptor is ineffective against the Mark VI Phyton Torpedo.

TA-466, 467, 468, 469 Marks VII, VIII, IX, X Phyton Torps

Descriptive: Phyton torpedoes can be equipped to have even more powerful warheads.

Designation: +⁴ as in 8/M.44td³|+⁴ (Mark VII; 4X attack factor)

+⁶ as in 9/S.45sd|+⁶ (Mark IX; 6X attack factor)

++⁶ as in 10/GA.46ud|++⁶ (Mark X; 6X attack factor, 1-square homing)

Prerequisite: Must be developed in sequence.

Development Cost: 32 MT for each mark

Item Cost: 5 MT per gun; mounted on a ship with 6 or more guns.

When inoperable: Torpedo tubes are destroyed along with guns, p.133.

Narrative: Each mark is the same as the Mark VI, except for the increasingly powerful attack multiple:

Mark VII	Quadruple attack; 4X number of guns
Mark VIII	Quintuple attack; 5X number of guns
Mark IX	Sextuple attack; 6X number of guns
Mark X	Same as Mark IX, except has 1-square homing capability at end of run, as per Mark VI Unguided Torpedo, p.250, and see illustration, p.251.

TA-470 Mark I Homing Torpedo

Descriptive: The Mark I Homing Torpedo uses inertial guidance and an intelligence sensing homing device to track the target. Effectiveness is reduced against stupid opponents. Its warhead consists of a mix of fusion alloys and geometrically reorganized entropy.

Designation: • (bullet) as in 5/CA.12•, 10/CS.85•, 8/S.6ad|rd|hd|md|td|•, etc.

Prerequisite: None

Development Cost: 128 MT

Item Cost: 4 MT per torp/tube – May be mounted on any ship with 1 to 10 guns.

When inoperable: Torpedo tubes are destroyed along with guns (p.133). Empty tubes are destroyed first.

Narrative: A ship carries 1 Mark I Homing Torpedo for each gun on the ship (TA-335 Double-Gun Warships carry 1 torpedo per long gun). The Mark I has a range of 30 and an attack factor of 9 in the square containing the target. It is lost in space after reaching its range limit. The torpedo has a contact fuse and will explode if it hits:

- Any planet, moon, ring or radiation belt
- A *targeted* ship (it will travel *through* an untargeted ship)
- TA-490 series Asteroid Torpedo already in place

The Homing Torpedo has a significant failure rate determined by a die roll as follows:

- 1, 2, 3 = Miss
- 4, 5, 6 = Hit (roll again for effectiveness of TA-130 series of Torpedo Interceptor)

The torpedo must travel at least 2 movement factors before it is armed and able to explode. The torpedo's attack factor is computed against the target's total defense value after damage, if any, of previous turns and not whatever defense was assigned for that round. Added defense for speed is not used.

A ship may fire as many as 2 Mark I Homing Torpedoes per battle board round. If 2 are fired, they must each be at a different target. The torpedo is fired after ship movement on the battle board is complete. See sequence of events chart on p.140. The Homing Torpedo has the same angle of fire as a gun, i.e., only one 45° bend is allowed. Like gunfire, the exact course the Homing Torpedo follows to the target is not plotted.

A Homing Torpedo may not be used to knock a ship out of pre-warp. However, a Homing Torpedo *will* home in on, but fail to explode on any of the Group V TAs that project false ship profiles.

Torpedo reloads are available only at a friendly production center star. Each Mark I Homing Torpedo reload is free. No time is required to reload, just warp in, warp out and consider it done. A ship cannot transfer torpedoes to another ship.

A ship can carry only one type of torpedo.

The illustration on the next page depicts how this torpedo functions.

Mark I Homing Torpedoes in action

The diagram illustrates the movement and firing of Mark I Homing Torpedoes in a tactical grid. The central element is the **Planet of value**, which has four poles: North (N), South (S), East (E), and West (W). A vertical column of yellow **Ring** markers is positioned above and below the planet. Two dashed diagonal lines represent the **Available arc of fire** for the planet.

Scenario 1 (Top): A ship labeled **8/CB.7** (1) is at the top left. A torpedo (2) is fired from it towards the planet. A label **1 Homing Torpedo fired** points to the torpedo's path. The ship's defensive **ti** failed, resulting in a **1:1 hit**. However, the torpedo (td) cuts the attack to **1:2**.

Scenario 2 (Bottom): A ship labeled **8/CA.8** (1) is at the bottom right. A torpedo (2) is fired from it towards the planet. A label **1 Homing Torpedo fired** points to the torpedo's path. A yellow box notes: **Homing Torpedo's track may have only 1 45° bend**.

The Moon is shown at the top and bottom of the grid.

Moon

8



1 Homing Torpedo fired

8/S.81•

arc of fire

LI

5. 11/11/11

8/CA.8•1

8

The Mark I Homing Torpedo scores a 1:1 hit on the 8/CB because the ship's defensive ti failed. However, the td cuts the attack to 1:2.

Moon

TA-471 Mark II Homing Torpedo

Descriptive: Same as TA-470 Mark I Homing Torpedo.

Designation: •• as in 9/CS.11••, 10/CA.86••, 8/S.7ad|rd|td|••, etc.

Prerequisite: TA-470 Mark I Homing Torpedo

Development Cost: 16 MT

Item Cost: 4 MT per gun – Must be mounted on a ship with 1 to 10 guns.

When inoperable: Torpedo tubes are destroyed along with guns (p.133).

Narrative: The operational characteristics of the Mark II are the same as the Mark I except that the range is increased to 32 and the attack factor to 12.

There is no automatic upgrading of existing Mark I's after the Mark II has been developed. A ship with Mark I's or earlier must warp into and out of a friendly production center star, after which the torpedoes are considered upgraded at no cost. No stopping time is required.

TA-472 Mark III Homing Torpedo

Descriptive: Same as TA-470 Mark I Homing Torpedo.

Designation: ••• as in 9/CS.11•••, 10/CA.86•••, 8/S.7ad|rd|td|•••, etc.

Prerequisite: TA-471 Mark II Homing Torpedo

Development Cost: 16 MT

Item Cost: 4 MT per gun – Must be mounted on a ship with 1 to 10 guns.

When inoperable: Torpedo tubes are destroyed along with guns (p.133).

Narrative: The operational characteristics of the Mark III are the same as the Mark II except that the range is increased to 34 and the attack factor to 15.

A ship may fire as many as 3 Mark III Homing Torpedoes per battle board round. If 3 are fired, they must each be at a different target.

There is no automatic upgrading of existing Mark II's after the Mark III has been developed. A ship with Mark II's or earlier must warp into and out of a friendly production center star, after which the torpedoes are considered upgraded at no cost. No stopping time is required. Ship size requirement must be respected.

TA-473 Mark IV Homing Torpedo

Descriptive: Same as TA-470 Mark I Homing Torpedo.

Designation: •••• as in 9/CS.11••••, 10/CA.86••••, 8/S.7ad|rd|td|••••, etc.

Prerequisite: TA-472 Mark III Homing Torpedo

Development Cost: 16 MT

Item Cost: 4 MT per gun – Must be mounted on a ship with 1 to 10 guns.

When inoperable: Torpedo tubes are destroyed along with guns (p.133).

Narrative: The operational characteristics of the Mark IV are the same as the Mark III except that the range is increased to 36 and the attack factor to 18. There is no automatic upgrading of existing Mark III's after the Mark IV has been developed.

A ship may fire as many as 4 Mark IV Homing Torpedoes per battle board round. If 4 are fired, they must each be at a different target.

A ship with Mark III's or earlier must warp into and out of a friendly production center star, after which the torpedoes are considered upgraded at no cost. No stopping time is required.

TA-474 Mark V Homing Torpedo

Descriptive: Same as TA-470 Mark I Homing Torpedo.

Designation: as in 9/CS.11....., 10/CA.86....., 8/S.7ad|rd|td|....., etc.

Prerequisite: TA-473 Mark IV Homing Torpedo

Development Cost: 16 MT

Item Cost: 4 MT per gun – Must be mounted on a ship with 1 to 10 guns.

When inoperable: Torpedo tubes are destroyed along with guns (p.133).

Narrative: The operational characteristics of the Mark V are the same as the Mark IV except that the range is increased to 40 and the attack factor to 21. Additionally, the TA-130 series of Torpedo Interceptor (p.166) is ineffective against the Mark V.

A ship may fire as many as 4 Mark V Homing Torpedoes per battle board round. No more than 2 may be fired at any 1 target. If 2 hit 1 target, combine the attack factors.

The Mark V Homing Torpedo and all later marks have a slightly reduced failure rate determined by a die roll as follows:

- 1, 2 = Miss
- 3, 4, 5, 6 = Hit

There is no automatic upgrading of existing Mark IV's after the Mark V has been developed. A ship with Mark IV's or earlier must warp into and out of a friendly production center star, after which the torpedoes are considered upgraded at no cost. No stopping time is required. Ship size requirement must be respected.

TA-475 Mark VI Homing Torpedo

Descriptive: Same as TA-470 Mark I Homing Torpedo.

Designation: as in 9/CS.11....., 10/CA.86....., 8/S.7ad|rd|td|....., etc.

Prerequisite: TA-474 Mark V Homing Torpedo

Development Cost: 16 MT

Item Cost: 4 MT per gun – Must be mounted on a ship with 1 to 10 guns.

When inoperable: Torpedo tubes are destroyed along with guns (p.133).

Narrative: The operational characteristics of the Mark VI are the same as the Mark V except that the attack factor is increased to 42. Additionally, the TA-130 series of Torpedo Interceptor (p.166) is ineffective against the Mark VI.

A ship may fire as many as 4 Mark VI Homing Torpedoes per battle board round. No more than 2 may be fired at any 1 target. If 2 hit 1 target, combine the attack factors.

There is no automatic upgrading of existing Mark V's after the Mark VI has been developed. A ship with Mark V's or earlier must warp into and out of a friendly production center star, after which the torpedoes are considered upgraded at no cost. No stopping time is required.

TAAs 476-479 Marks VII through X Homing Torpedo

Descriptive: The Marks VII, VIII, IX and X Homing Torpedoes are designed for 9- to 13-gun warships (p.131), TA-400 series of Fortresses and TA-1001 Super Planetary Fortress.

Designation: •⁴⁸, •⁵⁴ or •⁶⁰ as in 8/DN.45sd|•⁴⁸ (Mark VII; attack factor 48),
9/CB.45sd|•⁵⁴ (Mark VIII; attack factor 54),
9/CG.45sd|•⁶⁰ (Mark IX; attack factor 60),
10/S.45sd|•⁶⁶ (Mark X; attack factor 66)

Prerequisite: TA-488 Mark VI Homing Torpedo, p.260.

Development Cost: 32 MT for each mark. Must be developed in sequence.

Item Cost: 4 MT per torpedo/torpedo tube on 9- to 13-gun warships (p.131) or the various fortresses. Mounted 1 per gun. Cost is 2 MT per torpedo/torpedo tube mounted by 8-gun/torpedo modules on a Super Moon Fortress, Orbital Moon Fortress, Suicide Moon Fortress or TA-1001 Super Planetary Fortress. Cannot be on a TA-330 Raider (p.213).

When inoperable: Torpedo tubes are destroyed along with guns, p.133.

Narrative: The Marks VII, VIII, IX and X Homing Torpedoes have an attack factor of 48, 54, 60 and 66, respectively, and are mounted on 9- to 13-gun warships. The Mark VII, VIII, IX and X Homing Torpedoes function similarly to the Mark VI, except as follows:

- Homing Torpedoes of *any* mark cancel each other on a 1:1 basis. Only ships that fire Homing Torpedoes at each other cancel. Uncanceled Homing Torpedoes proceed to the target.

- TA-700 series of Hallucination Projector is effective.

- TA-598 Torpedo Gatling (p.304) cannot be used

- TA-479 Torpilleur Capability (Homing), below, cannot be used

The TA-133 series of Marks IV, V and VI Torpedo Interceptor (p.168) retain their normal effectiveness against Marks VII, VIII, IX and X Homing Torpedoes.

TA-479.1 Torpilleur Capability (Homing)

Descriptive: Allows a ship to carry twice the number of Homing Torpedoes and tubes than it normally would. This TA is largely unnecessary for the Homing Torpedo.

Designation: _ (underline) as in 5/Z.12•••••, 10/CS.85•••••, etc.

Prerequisite: TA-474 Mark V Homing Torpedo

Development Cost: 4 MT

Item Cost: 8 MT for 2 torps and 2 tubes, e.g., 64 MT for an 8-gunner – May be mounted on any ship with 4 to 10 guns. Cannot be used with TAAs 476-478 Marks VII, VIII, IX or X Homing Torpedoes.

When inoperable: 2 torpedoes and 2 tubes are destroyed along with each gun (p.133). Empty tubes are destroyed first.

Narrative: A ship carries 2 torpedoes and 2 tubes for each gun. A ship may fire 2 to 4 (depending on mark) Homing Torpedoes per battle board turn. No more than 2 may be fired at any 1 target. All other operational characteristics of Homing Torpedoes remain pertinent to the mark employed.

A ship upgraded to have Torpilleur Capability (Homing) must warp into and out of a friendly production center star, after which the ship is considered upgraded. No stopping time is required. The full 8 MT per tube must be paid for the upgrade. The ship size requirement must be respected.

TA-480 Mark I Toss Torpedo

Descriptive: The Mark I Toss Torpedo is a torpedo launch module attached to the exterior of a ship. It is jettisoned after use. The torpedoes are tossed away from the mother ship 1 battle board move before they begin moving toward the enemy. The Toss Torpedo uses inertial guidance to travel for multiple moves in a straight line toward a target. The warhead is a mix of explosives found only in space operas.

Designation: ø (option-o) as in 5/CA.12ø, e|jg|10//CH.85sd|td³|ø, 8/YA.6ø, etc.

Prerequisite: None

Development Cost: 128 MT

Item Cost: 3 MT per torpedo, 2 torpedoes per gun. Mounted only on the following warships (TA-364 CT, p.222, is excluded). Partial patterns may not be fired.

- 3-gun YA Yacht, p.131, 6 torpedoes; all fired 6 right *or* 6 left in 1 turn
- 3-gun PG Gunboat, p.131; 6 torpedoes; all fired 6 right *or* 6 left in 1 turn
- 6-gun FR Frigate, p.131; 12 torpedoes; fired 6 right *and* 6 left in 1 turn
- 6-gun CL Light Cruiser, p.131; 12 torpedoes; fired 6 right *and* 6 left in 1 turn
- 12-gun CH Heavy Battlecruiser, p.131; 24 torpedoes; fired 6 right *and* 6 left; 1 reload
- 18-gun Z Super Dreadnought, p.131; 36 torpedoes; fired 6 right *and* 6 left; 2 reloads
- 24-gun KG King Class DR, p.131; 48 torpedoes; fired 6 right *and* 6 left; 3 reloads
- 30-gun G Giant, p.131; 60 torpedoes; fired 6 right *and* 6 left per turn; 4 reloads
- 36-gun T Titan, p.131; 72 torpedoes; fired 6 right *and* 6 left per turn; 5 reloads

When inoperable: 2 torpedoes destroyed for each gun lost or destroyed as a TA.

Narrative: The Mark I has speed 20 and an attack factor of 24 in the 8 squares around the torpedo blast. All marks of Toss Torpedo will make 3 moves before it is lost. The Toss Torpedo cannot attack any fortress, but see TA-1470 Fortress-Busting Toss Torpedo, p.497.

The distance tossed on the diagonals is to ranges 2, 6, 10, 14, 18 and 22. The distance tossed N, S, E or W is to ranges 1, 4, 7, 10, 13 and 16. Don't try to visualize this; see illustrations, p.263-264. The ship can be traveling in any direction at any speed when it tosses the Toss Torpedoes. The torpedoes then move directly forward or backward from the toss point.

Torpedo toss points are invisible to the enemy, but movements are visible. It has a proximity fuse (Mark VII and later have a destination fuse) and will explode when it comes anywhere along its course within 1 square of:

- A Toss Torpedo of any mark approaching on a directly opposite course
- Any enemy ship, but not a friendly ship (sophisticated IFF works perfectly!)
- A TA-490 Asteroid Torpedo's asteroid or celestial object. Blast kills an asteroid.

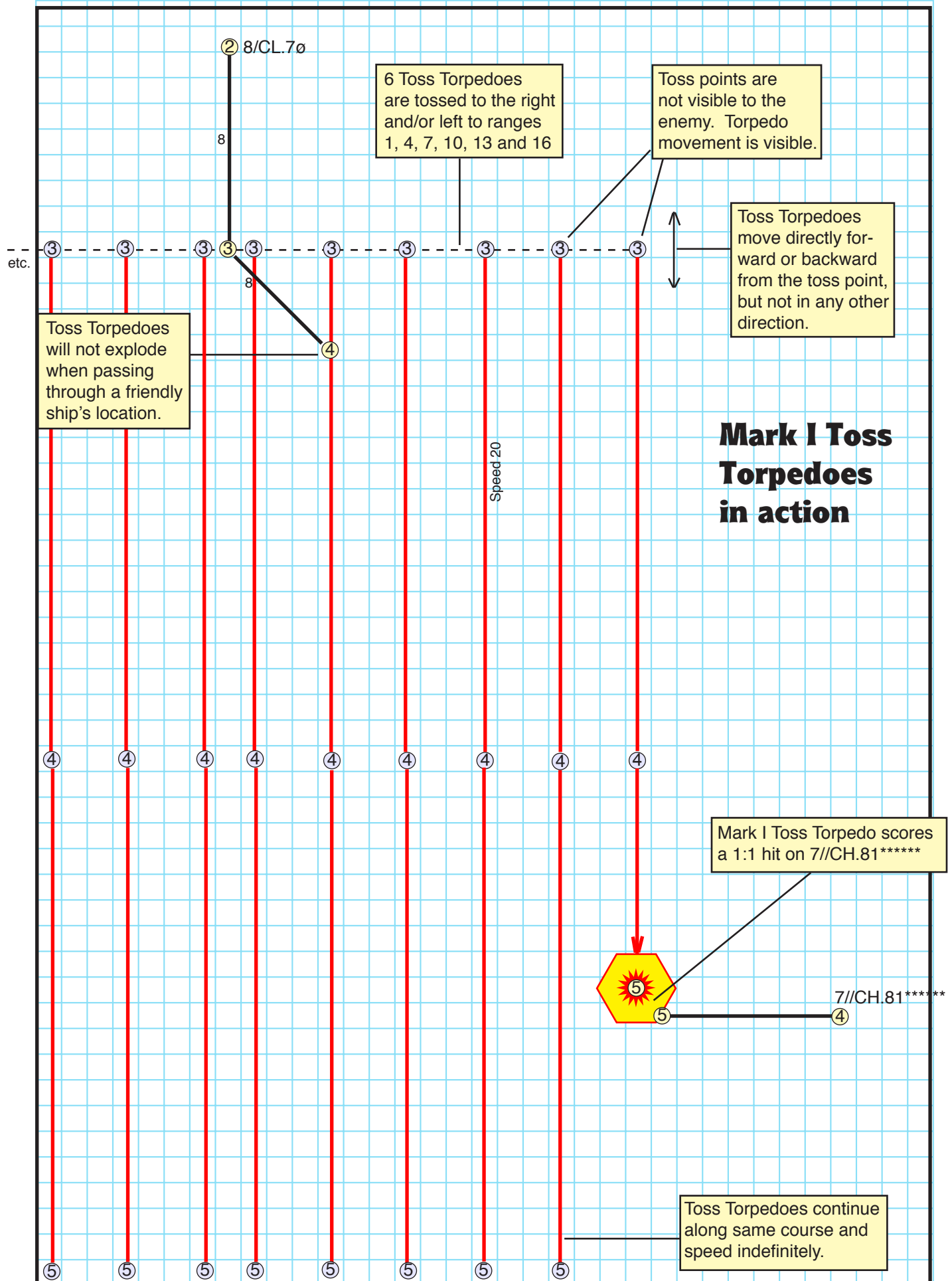
Blast patterns from other torpedoes affect a Toss Torpedo as follows: Unguided Torpedo (kill it), Homing Torpedo (no effect), Meandering Medusa (kill it), White Hole Torpedo (kill it), Dislocation Torpedo (move it), Time Stasis Torpedo (stop it temporarily), Electromagnetic Burst Torpedo (kill it) and Negative Energy Torpedo (kill it).

It is tossed at the same time other torpedoes are fired (at the same time guns are fired). Each Toss Torpedo will move along its course the same time ships move the next battle board turn. It explodes along with other torpedoes. Sequence of Events, p.140.

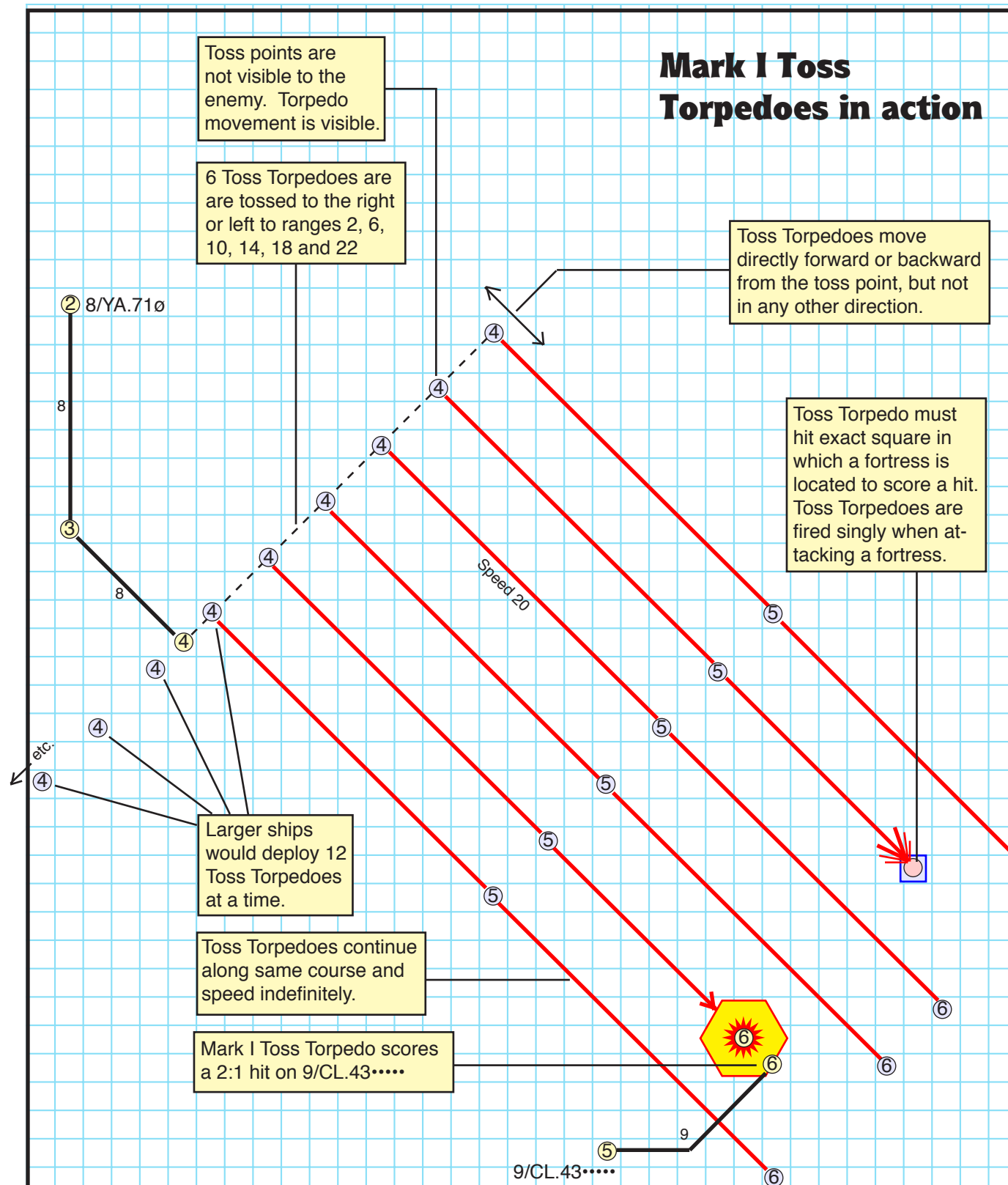
The direction the Toss Torpedo will travel from the toss point is determined when the torpedo makes its first speed 20 move. That direction will always be perpendicular (90°) to the deployed line of toss torpedoes. Don't try to visualize this; see illustrations, p.263-264.

The torpedo's attack factor is computed against the target's total defense value after damage, if any, of previous turns and not assigned defense. Alternative Rule: The attack factor of all marks of Toss-type Torpedoes may be computed against the target's original number of hull factors. Excludes fortresses.

TA-700 series of Hallucination Projector and TA-130 series of Torpedo Interceptor are not effective against the Toss Torpedo.



Mark I Toss Torpedoes in action



TAAs 481.2, .3, .4, .5, .6, .7, .8, .9, .10, .11, .12, .13, .14, .15, .16, .17, .18 Marks II through XVIII Toss Torpedo

Descriptive: Same as TA-480 Mark I Toss Torpedo.

Designation: $\emptyset\emptyset^{24, 32, 40, 48, 56, 64, 72, 80, 88, 96, 104, 112, 120, 128, 136, 144, 152}$ or 160 , (option-o, option-o followed by a superscript number that indicates the attack factor) as in 9/CL.11 $\emptyset\emptyset^{96}$, 10/CH.86 $\emptyset\emptyset^{64}$, 8/YA.7 $\emptyset\emptyset^{112}$, etc.

Prerequisite: TA-480 Mark I Toss Torpedo for the Mark II; must develop in sequence.

Development Cost: 16 MT for each mark; must be developed in sequence

Item Cost: 3 MT per torpedo, 2 torpedoes per gun. Mounted only on the following warships (TA-364 CT, p.222, is excluded). Partial patterns may not be fired.

- 3-gun YA Yacht, p.131; 6 torpedoes; all fired 6 right *or* 6 left in 1 turn
- 3-gun PG Gunboat, p.131; 6 torpedoes; all fired 6 right *or* 6 left in 1 turn
- 6-gun FR Frigate, p.131; 12 torpedoes; fired 6 right *and* 6 left in 1 turn
- 6-gun CL Light Cruiser, p.131; 12 torpedoes; fired 6 right *and* 6 left in 1 turn
- 12-gun CH Heavy Battlecruiser, p.131; 24 torpedoes; fired 6 right *and* 6 left; 1 reload
- 18-gun Z Super Dreadnought, p.131; 36 torpedoes; fired 6 right *and* 6 left; 2 reloads
- 24-gun KG King Class DR, p.131; 48 torpedoes; fired 6 right *and* 6 left; 3 reloads
- 30-gun G Giant, p.131; 60 torpedoes; fired 6 right *and* 6 left per turn; 4 reloads
- 36-gun T Titan, p.131; 72 torpedoes; fired 6 right *and* 6 left per turn; 5 reloads

When inoperable: 2 torpedoes destroyed for each gun lost or destroyed as a TA.

Narrative: The operational characteristics of the Mark II and later are the same as the Mark I except as indicated in the chart at right:

Also, the Mark VII and later have the proximity fuse replaced by a destination fuse, which means that it will explode upon command rather than exploding when it nears something.

A Toss Torpedo can be automatically upgraded to a higher mark by landing on the planet of value of a production center star for 1 battle board turn.

TA-482 Torpilleur Capability (Toss)

Descriptive: Not available.

TA-1470 Fortress-Buster Toss Torpedo

Descriptive: See p.497.

Mark	Speed Per Move	Attack Factor
I	20	24
II	20	32
III	20	40
IV	20	48
V	20	56
VI	20	64
VII	20	72
VIII	30	80
IX	30	88
X	30	96
XI	30	104
XII	30	112
XIII	30	120
XIV	30	128
XV	20	136
XVI	20	144
XVII	20	152
XVIII	20	160

TA-488 Mark VII Super Torpedoes

Descriptive: Some torpedoes can be equipped to have super-powerful warheads.

Designation: \star^{48} as in 8/CA.44ud | \star^{48} (Mark VII Unguided Torpedo; attack factor 48)
 Δ^{48} as in 9/CM.47sd | Δ^{48} (Mark VII Meandering Medusa; attack factor 48)

Prerequisite: The pertinent Mark VI torpedo.

Development Cost: 16 MT

Item Cost: 4 MT per torp/tube – Must be mounted on any warship with 4 to 14 guns.

When inoperable: Torpedo tubes are destroyed along with guns, p.133.

Narrative: The Mark VII Unguided Torpedo and Meandering Medusa (Missile) each have an attack factor of 48.

The Mark VII Unguided Torpedo functions as the Mark VI with 1-square deflection at the end of its run, except that it has a larger warhead. The Mark VII Meandering Medusa is identical to the Mark VI except for the more powerful warhead.

TA-598 Torpedo Gatling (p.304) cannot be used with Super Warhead Torpedoes. The TA-133 series of Marks IV, V and VI Torpedo Interceptor have varying degrees of effectiveness against the Unguided Torpedo.

TA-488.8, .9, .10, .11, .12, .13, .14, .15, .16, .17, .18, .19 Marks VIII through XIX Super Torpedoes

Descriptive: Mark VII torpedoes can be equipped to have even more powerful warheads.

Designation: \star^{54} as in 8/CA.44ud | \star^{54} (Mark VIII Unguided Torpedo; attack factor 54)
 Δ^{60} as in 9/CM.47sd | Δ^{60} (Mark VIII Meandering Medusa; attack factor (60))

Prerequisite: Each mark must be developed in sequence by type.

Development Cost: 16 MT for each mark

Item Cost: 4 MT per torp/tube – Must be mounted on any warship with 4 to 14 guns.

When inoperable: Torpedo tubes are destroyed along with guns, p.133.

Narrative: Each mark is the same as the Mark VII, except for the increasingly powerful attack factors:

Mark VIII	54 attack
Mark IX	60 attack (Mark VIII Meandering Medusa)
Mark X	66 attack
Mark XI	72 attack
Mark XII	78 attack (Mark IX Meandering Medusa)
Mark XIII	84 attack
Mark XIV	90 attack
Mark XV	96 attack (Mark X Meandering Medusa)
Mark XVI	102 attack
Mark XVII	108 attack
Mark XVIII	114 attack
Mark XIX	120 attack (Mark XI Meandering Medusa)

The Meandering Medusa advances in warhead power with fewer marks than the other torpedoes.

TA-490 Mark I Asteroid Torpedo

Descriptive: The Mark I Asteroid Torpedo is nothing more than a powered rock with no explosive that goes out from its launching fortress and stops. It acts as an obstruction for ships to run into. Damage will be caused if a bunch of them are placed in front of an on-coming ship. The rocks also can act as a barrier against other types of torpedoes, and it is effective against TA-410 Moon Buster, p.237, and TAs 1111-1117 Moon-Crater Bomb, p.444.

Designation: Å (option-a) as in OMF.16Å, PF.8Å or MF.32Å (or use a lowercase a)

Prerequisite: None

Development Cost: 32 MT

Item Cost: 1 MT per gun for the launching mechanism; the rocks are free. Must be mounted in groups of 8. Can be mounted only on the following fortresses:

- TA-401 Super Moon Fortress, p.236
- TA-420 Orbital Moon Fortress, p.238
- TA-1001 Super Planetary Fortress, p.430

When inoperable: Launching tubes are destroyed along with guns (p.133). Empty tubes are destroyed first.

Narrative: A fortress (OMF, MF or PF) carries 4 Mark I Asteroid Torpedoes for each gun. The Mark I has a range of 20 and an attack factor of 3:1 against any ship that runs into it. The torpedo is an inert rock with no explosive, so both the TA-120 series of Torpedo Deflector and the TA-130 series of Torpedo Interceptor are ineffective. However, a ship carrying TA-100 Asteroid Deflector, TA-110 Super Deflector or TA-150 Universal Deflector reduces the Asteroid Torpedo's collision attack factor to 2:1.

The Asteroid Torpedo may be fired *anywhere* to range 20 as long as its course does not travel through or onto a celestial hazard or ship. A fortress may fire its entire complement of torpedoes in a single salvo, if desired. The torpedo is fired after ship movement on the battle board is complete, but before any other weapons are fired, which means it can block torpedoes or cause a targeted ship to use its guns and/or torpedoes to blast a path through a *single layer* of the rocks for the ship's next turn.

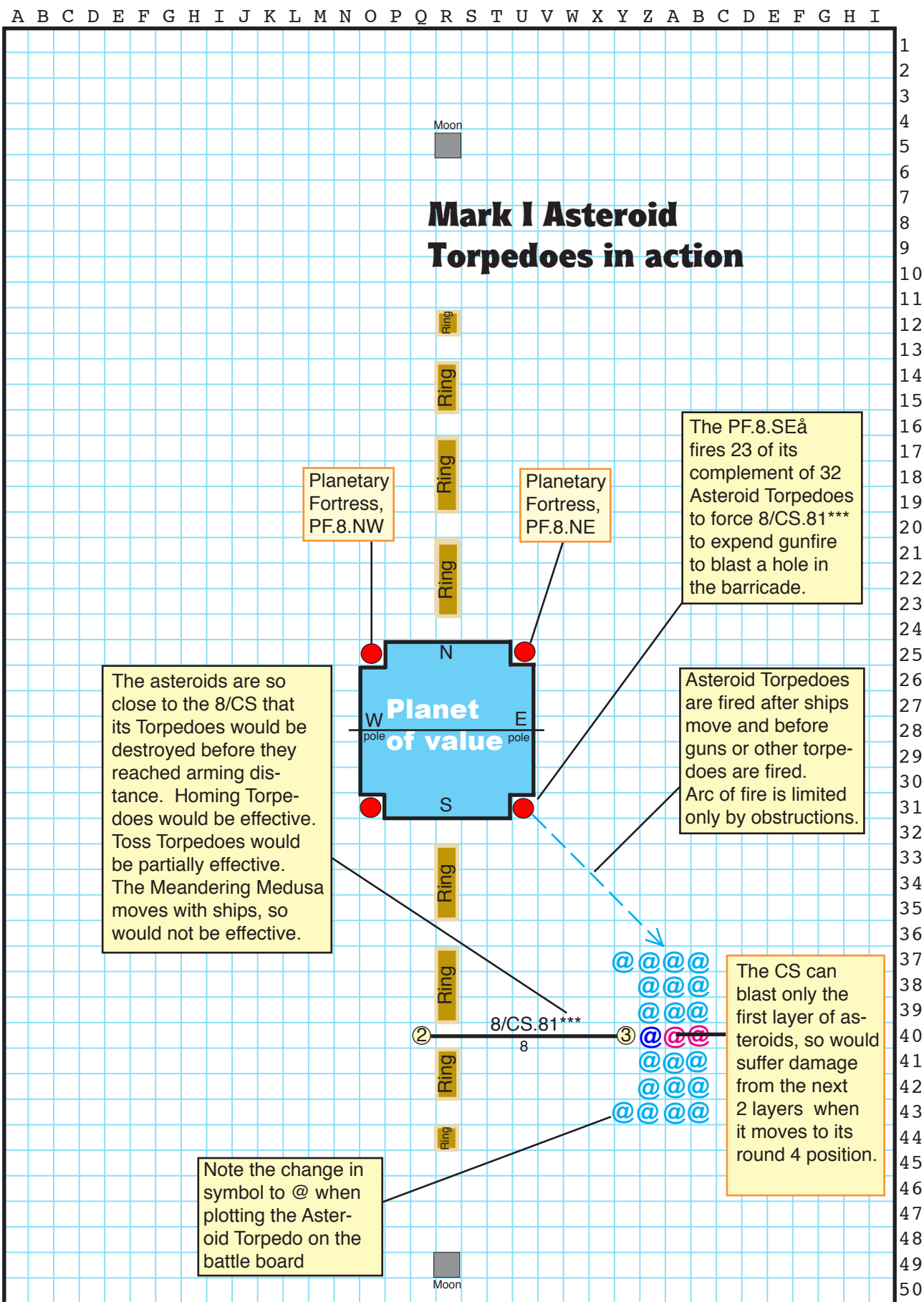
The following weapons and circumstances destroy an Asteroid Torpedo:

- A collision with any size of ship
- An explosion from Unguided, Phyton, Homing and Toss Torpedoes or MineTorp
- The White Hole Torpedo and Dislocation Torpedo destroy the Å without relocating it
- 1 gun directed at an Asteroid Torpedo will destroy it (only the first layer can be hit).
- A hit by any mark of Heliostatic Hellfire Machine, p.226, destroys an asteroid

The Asteroid Torpedo has a number of uses, among them:

- To soak off enemy gunfire to clear a path for a ship's movement next turn
- To damage an enemy ship that runs into it
- To screen off enemy gunfire by creating a wall of rocks
- To provide a screen through which enemy torpedoes cannot pass
- A collision with 8 or more Asteroid Torpedoes will destroy a TA-410 Moon Buster's asteroid, p.237. A Moon Buster's escorts can provide cover fire to prevent this.
- A collision with 1 Asteroid Torpedo will destroy a TA series of 1111-1117 Moon-Crater Bomb, p.444.

Each Mark I Asteroid Torpedo reload is free. Reloading is done between years; it cannot be done during a battle. Fortresses can reload even if the star is under blockade.



TA-491 Mark II Asteroid Torpedo

Descriptive: Same as TA-490 Mark I Asteroid Torpedo.

Designation: åå (option-a) as in MF.32åå, OMF.16åå or PF.8åå (or use a lowercase a)

Prerequisite: TA-490 Mark I Asteroid Torpedo.

Development Cost: 4 MT

Item Cost: Same as TA-490 Mark I Asteroid Torpedo

When inoperable: Torpedo tubes are destroyed along with guns (p.133).

Narrative: The operational characteristics of the Mark II are the same as the Mark I except that the range is increased to 24.

Mark Is on a fortress are automatically upgraded to the Mark II the Cycom after completion of the Mark II TA.

TA-492 Mark III Asteroid Torpedo

Descriptive: Same as TA-490 Mark I Asteroid Torpedo.

Designation: ååå as in MF.32ååå, OMF.16ååå or PF.8ååå (or use a lowercase a)

Prerequisite: TA-491 Mark II Asteroid Torpedo.

Development Cost: 4 MT

Item Cost: Same as TA-490 Mark I Asteroid Torpedo

When inoperable: Torpedo tubes are destroyed along with guns (p.133).

Narrative: The operational characteristics of the Mark III are the same as the Mark II except that the range is increased to 28.

Mark IIs on a fortress are automatically upgraded to the Mark III the Cycom after completion of the Mark III TA.

TA-493 Mark IV Asteroid Torpedo

Descriptive: Same as TA-490 Mark I Asteroid Torpedo.

Designation: åååå as in MF.32åååå, OMF.16åååå or PF.8åååå (or use a lowercase a)

Prerequisite: TA-492 Mark III Asteroid Torpedo.

Development Cost: 4 MT

Item Cost: Same as TA-490 Mark I Asteroid Torpedo

When inoperable: Torpedo tubes are destroyed along with guns (p.133).

Narrative: The operational characteristics of the Mark IV are the same as the Mark III except that the range is increased to 32.

Mark IIIs on a fortress are automatically upgraded to the Mark IV the Cycom after completion of the Mark IV TA.

TA-494 Mark V Asteroid Torpedo

Descriptive: Same as TA-490 Mark I Asteroid Torpedo.

Designation: åååååå as in PF.8åååååå, OMF.16åååååå or PF.8åååååå (or use a lowercase a)

Prerequisite: TA-493 Mark IV Asteroid Torpedo.

Development Cost: 4 MT

Item Cost: Same as TA-490 Mark I Asteroid Torpedo

When inoperable: Torpedo tubes are destroyed along with guns (p.133).

Narrative: The operational characteristics of the Mark V are the same as the Mark IV except that the range is increased to 36.

Mark IVs on a fortress are automatically upgraded to the Mark V the Cycom after completion of the Mark V TA.

TA-495 Mark VI Asteroid Torpedo

Descriptive: Same as TA-490 Mark I Asteroid Torpedo.

Designation: åååååååå as in PF.8åååååååå, OMF.16åååååååå or MF.32åååååååå (or use a lowercase a)

Prerequisite: TA-494 Mark V Asteroid Torpedo.

Development Cost: 4 MT

Item Cost: Same as TA-490 Mark I Asteroid Torpedo

When inoperable: Torpedo tubes are destroyed along with guns (p.133).

Narrative: The operational characteristics of the Mark VI are the same as the Mark V except that the range is increased to 40.

Mark Vs on a fortress are automatically upgraded to the Mark VI the Cycom after completion of the Mark VI TA.

TA-500 Mark I Meandering Medusa (Missile)

Descriptive: The Mark I Meandering Medusa is a guided missile that is programmed to travel along a pre-determined course until it (hopefully) reaches a damaging proximity to its target, where it will explode. The warhead is packed with fanciful science fiction balderdash that cannot be explained in terms that will ever enter the human lexicon.

Designation: Δ (option-j) as in 4/Z.12 Δ , 10/DN.85 Δ , 8/P.6 Δ , etc. (lowercase m can be used, although it is not the preferred symbol)

Prerequisite: None

Development Cost: 80 MT

Item Cost: 1 MT per launching rack and 5 MT per missile = 6 MT each. Must be on a warship having 8 or more guns; 1 Meandering Medusa rack/missile for every 2 guns. An 11-gunner, for example, carries 5 Meandering Medusas, a 12-gunner 6, and a 30-gunner 15. A ship can carry only 1 type of torpedo.

When inoperable: Launching racks/missiles are destroyed along with guns (p.133). Empty racks are destroyed first.

Narrative: A Mark I Meandering Medusa has an attack factor of 24 against a target's original number of hull factors in a 7-squares by 7 area on the battle board. It travels at speed 20 (or less) for 4 moves (or fewer) on the battle board, yielding a total range of 80. The missile's entire 1- to 4-move course is recorded before initial move. Start of movement is simultaneous with ships and becomes visible to the enemy with ship movement, not prior to ship movement. The missile has unlimited maneuverability. Explosions and damage are simultaneous with other torpedoes.

The Meandering Medusa has a defense of 10 against gunfire, including the Plasma Gun. A single hit (p.133) of any type (gun, hull, engines, TA or bridge) destroys the Medusa.

The Meandering Medusa is lost if it ends a move in or passes through a square with:

- Planet, moon, other celestial hazard or ship. It cannot be hit by gunfire.

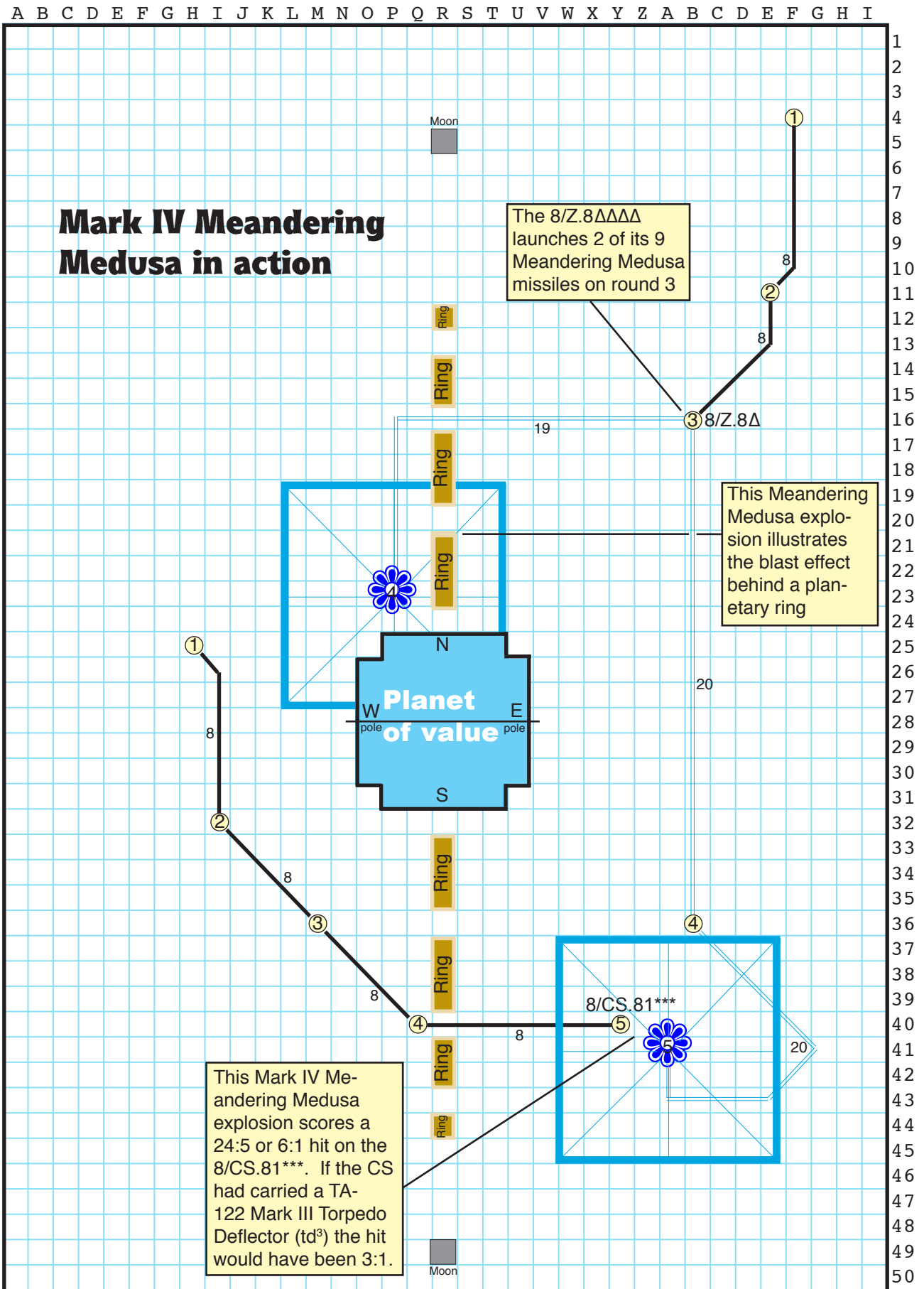
All marks of Meandering Medusa moving toward a target can be destroyed before the turn they are programmed to explode by some other types of torpedoes, including:

- TA-450 series of Unguided Torpedo
- TA-460 series of Phyton Torpedo
- TA-480 series of Toss Torpedo
- TA-130 series of Torpedo Interceptor
- TA-490 series of Asteroid Torpedo's asteroid
- TA-510 series of Negative Energy Torpedo's blast pattern
- TA-520 series of Electromagnetic Burst Torpedo's blast pattern
- TA-530 series of Gravity Bomb Torpedo's blast pattern
- TA-540 series of Dislocation Torpedo's blast pattern
- TA-550 series of White Hole Torpedo's white hole
- TA-560 series of Time Stasis Torpedo's blast pattern
- TA-570 series of Mine/Minetorp's sensitivity zone.

A Meandering Medusa will knock a ship out of pre-warp with either its track or its blast pattern. A blast pattern is not screened out by moons or anything else that is in the way.

Meandering Medusa reloads are available only at a friendly production center star. Reloads are free. No time is required to reload, just warp in, warp out and consider it done. A ship can transfer Meandering Medusa missiles to another ship, but not during a battle.

The illustration on the next page depicts how the Mark IV version of this missile functions. The Mark IV has a larger blast pattern and more hitting power than the Mark I.



TA-501 Mark II Meandering Medusa (Missile)

Descriptive: Same as TA-500 Mark I Meandering Medusa.

Designation: ΔΔ (option-j) as in 9/BB.11ΔΔ, 10/Z.86ΔΔ, 8/DN.7ad|rd|td|ΔΔ, etc., (or can use a lowercase m)

Prerequisite: TA-500 Mark I Meandering Medusa. Must be on 8-gun ship or larger.

Development Cost: 32 MT

Item Cost: Same as TA-500 Mark I Meandering Medusa

When inoperable: Launching racks/missiles are destroyed along with guns (p.133). Empty racks are destroyed first.

Narrative: The operational characteristics of the Mark II are the same as the Mark I except that the target square can be reprogrammed at the end of each move, even if the launching ship was destroyed on a previous move. There is no automatic upgrading of existing Mark I's after the Mark II has been developed. A ship with Mark I's or earlier must warp into and out of a friendly production center star, after which the torpedoes are considered upgraded at no cost. No stopping time is required.

TA-502 Mark III Meandering Medusa (Missile)

Descriptive: Same as TA-500 Mark I Meandering Medusa

Designation: ΔΔΔ as in 9/BB.11ΔΔΔ, 10/Z.86ΔΔΔ, 8/DN.7ad|rd|td|ΔΔΔ, etc., (or can use a lowercase m)

Prerequisite: TA-501 Mark II Meandering Medusa. Must be on 8-gun ship or larger.

Development Cost: 32 MT

Item Cost: Same as TA-500 Mark I Meandering Medusa

When inoperable: Launching racks/missiles are destroyed along with guns (p.133). Empty racks are destroyed first.

Narrative: The operational characteristics of the Mark III are the same as the Mark II except that the blast pattern is expanded to 9-squares by 9 on the battle board. There is no automatic upgrading of existing Mark II's after the Mark III has been developed. A ship with Mark II's or earlier must warp into and out of a friendly production center star, after which the torpedoes are considered upgraded at no cost. No stopping time is required.

TA-503 Mark IV Meandering Medusa (Missile)

Descriptive: Same as TA-500 Mark I Meandering Medusa

Designation: ΔΔΔΔ as in 9/BB.11ΔΔΔΔ, 10/Z.86ΔΔΔΔ, 8/DN.7ad|rd|td|ΔΔΔΔ, etc., (or can use a lowercase m)

Prerequisite: TA-502 Mark III Meandering Medusa. Must be on 8-gun ship or larger.

Development Cost: 8 MT

Item Cost: Same as TA-500 Mark I Meandering Medusa

When inoperable: Launching racks/missiles are destroyed along with guns (p.133). Empty racks are destroyed first.

Narrative: The operational characteristics of the Mark IV are the same as the Mark III except that both speed and attack factor are increased to 30. There is no automatic upgrading of existing Mark III's after the Mark IV has been developed. A ship with Mark III's or earlier must warp into and out of a friendly production center star, after which the torpedoes are considered upgraded at no cost. No stopping time is required.

TA-504 Mark V Meandering Medusa (Missile)

Descriptive: Same as TA-500 Mark I Meandering Medusa

Designation: ΔΔΔΔΔ as in 9/BB.11ΔΔΔΔΔ, 10/Z.86ΔΔΔΔΔ, 8/P.7ad|rd|td|ΔΔΔΔΔ, etc., (or can use a lowercase m)

Prerequisite: TA-503 Mark IV Meandering Medusa. Must be on 8-gun ship or larger.

Development Cost: 32 MT

Item Cost: Same as TA-500 Mark I Meandering Medusa

When inoperable: Launching racks/missiles are destroyed along with guns (p.133). Empty racks are destroyed first.

Narrative: The operational characteristics of the Mark V are the same as the Mark IV except that the attack factor is increased to 36. There is no automatic upgrading of existing Mark IV's after the Mark V has been developed. A ship with Mark IV's or earlier must warp into and out of a friendly production center star, after which the torpedoes are considered upgraded at no cost. No stopping time is required.

TA-505 Mark VI Meandering Medusa (Missile)

Descriptive: Same as TA-500 Mark I Meandering Medusa

Designation: ΔΔΔΔΔΔ as in 9/BB.11ΔΔΔΔΔΔ, 10/Z.86ΔΔΔΔΔΔ, 8/DN+.7ad|rd|td|ΔΔΔΔ, etc., (or can use a lowercase m)

Prerequisite: TA-504 Mark V Meandering Medusa. Must be on 8-gun ship or larger.

Development Cost: 16 MT

Item Cost: Same as TA-500 Mark I Meandering Medusa

When inoperable: Launching racks/missiles are destroyed along with guns (p.133). Empty racks are destroyed first.

Narrative: The operational characteristics of the Mark VI are the same as the Mark V except that the attack factor is increased to 42. There is no automatic upgrading of existing Mark V's after the Mark VI has been developed. A ship with Mark V's or earlier must warp into and out of a friendly production center star, after which the torpedoes are considered upgraded at no cost. No stopping time is required.

See p.266 for Marks VIII through XI of the Meandering Medusa.

TA-509a, b, c, d, e, f, g, h Super Meandering Medusa – (a) Unguided, (b) Toss, (c) Negative Energy, (d) Electromagnetic Burst, (e) Gravity Bomb, (f) Dislocation, (g) White Hole, (h) Time Stasis

Descriptive: The Super Meandering Medusa is an unguided missile that carries a warhead that is packed with 1 other type of torpedo.

Designation: $\Delta\Delta$ (option-j) plus warhead designation, as in 4/Z.12 $\Delta\Delta$ x,10/P.5 $\Delta\Delta$ *⁹⁶, 8/CB.6 Δ ggg, etc., (lowercase mm can be used instead of the Δ , although it is not preferred).

Prerequisite: TA-500 Mark I Meandering Medusa, p.271, and the appropriate mark of torpedo that makes up its warhead. Note below that some early marks are precluded.

Development Cost: 32 for each mark. Can be developed in any order or simultaneously.

Item Cost: 20 MT each, which includes the Meandering Medusa and its complex warhead of any type listed below. Must be on a warship having 8 or more guns; 1 Super Meandering Medusa missile for every 2 guns. A 30-gunner, for example, can carry 15 Super Meandering Medusas, a CA 4, and a 13-gunner 6. Installed 4 at a time or to ship capacity.

When inoperable: Missiles are destroyed along with guns (p.133). Empty racks are destroyed first. The Super Meandering Medusa vanishes when it launches torpedoes.

Narrative: The Super Meandering Medusa travels at speed 20 for 1 move on the battle board, giving it a total range of 20 plus its warhead torpedo's range. It can travel slower than speed 20. Movement is simultaneous with ships. It has unlimited maneuverability.

The warhead of the Super Meandering Medusa is made up of 1 of 8 other torpedo types, all of which travel along any of the 8 directions except back into the parent ship. A warship may *not* mix warhead types on its suite of Super Meandering Medusa missiles. The number of torpedoes in the Super Medusa's warhead is listed below:

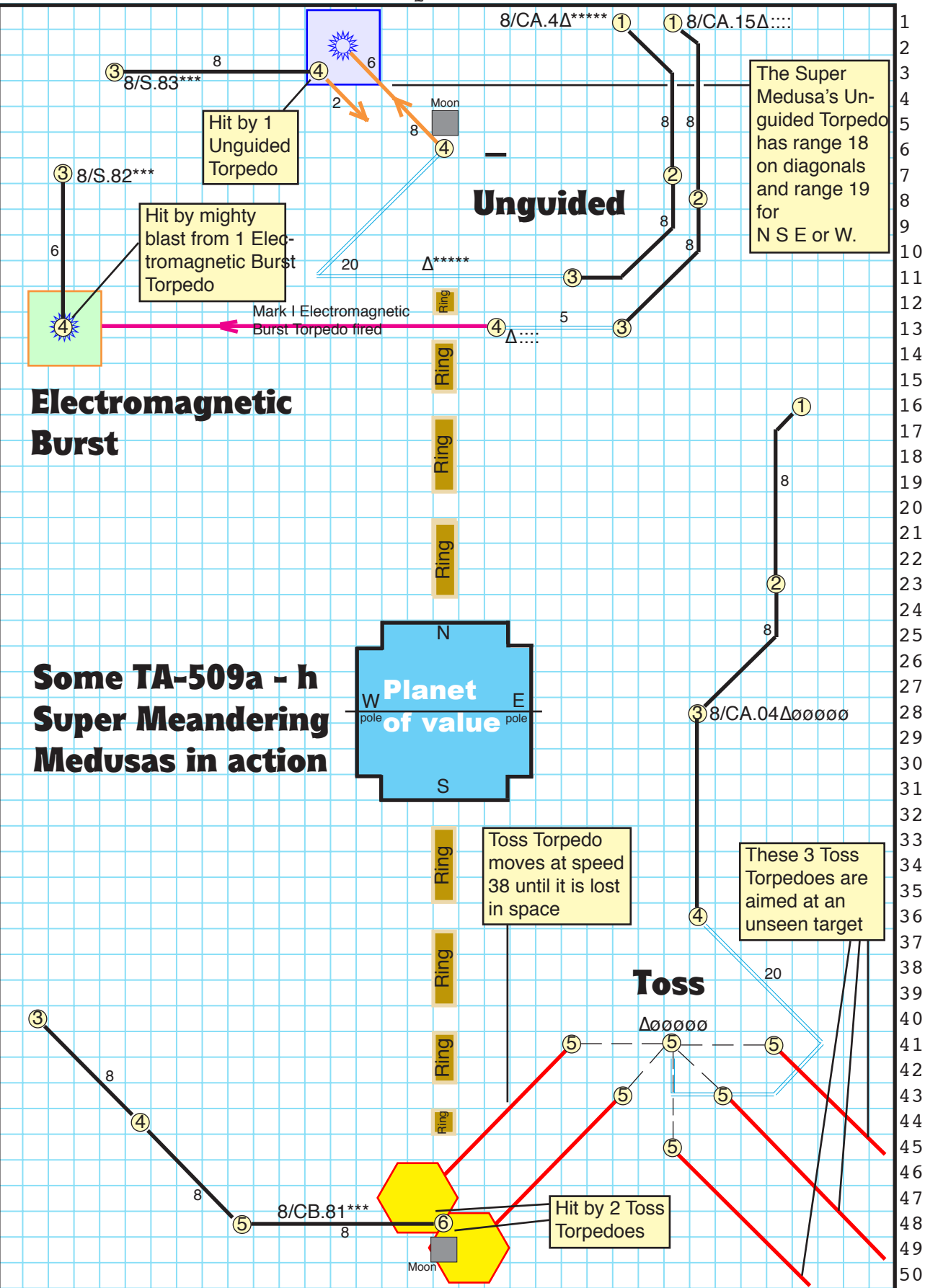
- TA-455 Mk VI or later Unguided Torpedo – $\Delta\Delta$ *⁴², 7 carried, range 18 (diagonal) or 19.
- TA-480 Mark VI or later Toss Torpedo – $\Delta\Delta\emptyset$ ⁴², 8 carried, speed 30 per move.
- TA-510 Mark III or later Negative Energy Torpedo – $\Delta\Delta$!!!, 7 carried, range 18.
- TA-523 Mark IV (only) Electromagnetic Burst Torpedo – $\Delta\Delta$::::, 7 carried, range 18.
- TA-530 Mark I or later Gravity Bomb Torpedo – $\Delta\Delta$ g, 4 carried, range 12.
- TA-543 Mark I or later Dislocation Torpedo – $\Delta\Delta$ ^^^, 7 carried, range 18.
- TA-550 Mark I or later White Hole Torpedo – $\Delta\Delta$ x, 2 carried, range 20.
- TA-563 Mark IV (only) Time Stasis Torpedo – $\Delta\Delta$ ††††, 2 carried, range 18.

The Meandering Medusa moves at the same time ships move. Warhead torpedoes are deployed at the end of a Medusa's movement and operate as other torpedoes of that type.

It will not deploy its torpedoes if it *ends* its deployment move in a square in which the Medusa would normally be destroyed by a celestial hazard, ship or TA-490 series of Asteroid Torpedo.

A Super Meandering Medusa will knock a ship out of pre-warp with either its movement or the deployment and operation of its torpedoes.

Super Meandering Medusa reloads are available only at a friendly production center star. Reloads cost 20 MT each. No time is required to reload, just warp in, land on the planet of value and warp out. A ship in a non-battle situation can transfer Super Meandering Medusa missiles to another ship as long as warhead types are not mixed.



TA-510 Mark I Negative Energy Torpedo

Descriptive: The Mark I Negative Energy Torpedo creates an effect pattern of negative energy that totally neutralizes the guns/defense, all TAs and maneuverability of a ship as long as that ship remains within the negative energy effect blast pattern as well as some effect afterwards. No weapon or natural hazard can attack the victim of a Negative Energy Torpedo, so the net effect is to temporarily eliminate a ship's battle effectiveness.

Designation: ! as in 4/S.12!, 10/CS.85!, 8/CA.6!, etc. (the common exclamation point, not to be confused with the upsidedown j used for the TA-600 series of Sub-Warp Drive)

Prerequisite: TA-471 Mark I Homing Torpedo, p.257; useful but not required: TA-800 series of Anti-Sub-Warp Drive, p.312.

Development Cost: 128 MT

Item Cost: 4 MT per torp/tube. Mounted on any warship with 4 to 16 long guns; 1 torpedo per long gun. Can be mounted on fortresses in banks of 8.

When inoperable: Torpedo tubes are destroyed along with guns (p.133). Empty tubes are destroyed first.

Narrative: The Negative Energy Torpedo creates a "blast" pattern that negates a ship's guns/defense, *all* TAs, maneuverability and ability to enter or remain in pre-warp. The victim cannot be attacked or affected by anything while *in* the blast pattern. A ship (or torpedoes) will travel along at its last unaffected course and speed until it drifts clear of the negative energy effect pattern, at which point the ship/torpedo will regain its full capability.

Gunfire cannot travel through a Negative Energy Torpedo's blast pattern.

Note that a ship using the TA-800 series of Sub-Warp Drive is knocked out of sub-warp and must spend either 2 (Marks I through VI) or 4 (Marks VII through XXVI) moves in normal space before it can re-enter sub-warp.

The Negative Energy Torpedo has the same angle of fire as a gun, i.e., only one 45° bend is allowed. Like gunfire, the exact course the Negative Energy Torpedo follows to the targeted square is not plotted unless needed to determine viability of the line of fire. The Mark I has a range of 26 and a 3 x 3 square negative energy effect pattern. The torpedo must travel at least 6 movement factors before it is armed and able to explode. A ship can fire some or all of its torpedoes at just 1 or many targets per battle board round. The torpedo is fired after ship movement is completed. Sequence of Events chart, p.140

The Mark I is unreliable; roll a 6-sided die:

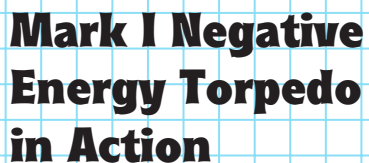
1, 2 = Torpedo explodes	Can fire torpedoes repeatedly during same battle board round until all duds are covered.
3, 4, 5, 6 = Torpedo fails to explode	

The TA-130 series of Torpedo Interceptor and TA-700 series of Hallucination projector are ineffective against all marks of the Negative Energy Torpedo.

The blast pattern stays on the battle board until the end of a year. The torpedo can be exploded anywhere along its track from range 6 to 26. The torpedo will self-destruct without effect if its negative energy effect pattern encompasses a celestial object, such as a planet or radiation belt, or another Negative Energy Torpedo's blast pattern.

The value of this torpedo has to do with taking an enemy ship out of a battle at a critical juncture. A second major use is to knock an opponent out of sub-warp. A third effective strategy is to cause an enemy ship to drift into a planet, moon, ring or radiation belt located just outside the blast pattern and be destroyed. Illustrations, p.278.

Torpedo reloads are available at any friendly production center star. Each Mark I Negative Energy Torpedo reload is free. Reload procedure is to land on the planet of value for 1 battle board turn. A ship can transfer torpedoes to another ship.



TA-511 Mark II Negative Energy Torpedo

Descriptive: Same as TA-510 Mark I Negative Energy Torpedo.

Designation: !! as in 9/CS.11!!, 10/CA.86!!, 8/S.7ad|rd|td|!!, etc.

Prerequisite: TA-510 Mark I Negative Energy Torpedo

Development Cost: 32 MT

Item Cost: 4 MT per torp/tube. Mounted on any warship with 4 to 16 long guns; 1 torpedo per long gun. Can be mounted on fortresses in banks of 8.

When inoperable: Torpedo tubes are destroyed along with guns (p.133).

Narrative: The operational characteristics of the Mark II are the same as the Mark I except that the range is increased to 32 and reliability is improved. Roll a 6-sided die:

1, 2, 3 = Torpedo explodes		Can fire torpedoes repeatedly during same
4, 5, 6 = Torpedo fails to explode		battle board round until all duds are covered.

The Mark I Negative Energy Torpedo is automatically upgraded for free to the Mark II by landing the ship on the planet of value for 1 battle board turn.

TA-512 Mark III Negative Energy Torpedo

Descriptive: Same as TA-510 Mark I Negative Energy Torpedo.

Designation: !!! as in 9/CS.11!!!, 10/CA.86!!!, 8/S.7ad|rd|td|!!!, etc.

Prerequisite: TA-511 Mark II Negative Energy Torpedo

Development Cost: 32 MT

Item Cost: 4 MT per torp/tube. Mounted on any warship with 4 to 16 long guns; 1 torpedo per long gun. Can be mounted on fortresses in banks of 8.

When inoperable: Torpedo tubes are destroyed along with guns (p.133).

Narrative: The operational characteristics of the Mark III are the same as the Mark II except that the range is increased to 38 (along diagonals) or 39 (N, S, E, or W) and reliability is improved. Roll a 6-sided die:

1, 2, 3, 4 = Torpedo explodes		Can fire torpedoes repeatedly during same
5, 6 = Torpedo fails to explode		battle board round until all duds are covered.

The Mark II Negative Energy Torpedo is automatically upgraded for free to the Mark III by landing the ship on the planet of value for 1 battle board turn.

TA-513 Mark IV Negative Energy Torpedo

Descriptive: Same as TA-510 Mark I Negative Energy Torpedo.

Designation: !⁴ as in 9/CS.11!⁴, 10/CA.86!⁴, 8/S.7ad|rd|td|!⁴, etc.

Prerequisite: TA-512 Mark III Negative Energy Torpedo

Development Cost: 16 MT

Item Cost: 4 MT per torp/tube. Mounted on any warship with 4 to 16 long guns; 1 torpedo per long gun. Can be mounted on fortresses in banks of 8.

When inoperable: Torpedo tubes are destroyed along with guns (p.133).

Narrative: The operational characteristics of the Mark IV are the same as the Mark III except that reliability is improved. Roll a 6-sided die:

1, 2, 3, 4, 5 = Torpedo explodes		Can fire torpedoes repeatedly during same
6 = Torpedo fails to explode		battle board round until all duds are covered.

The Mark III Negative Energy Torpedo is automatically upgraded for free to the Mark IV by landing the ship on the planet of value for 1 battle board turn.

TA-514 Mark V Negative Energy Torpedo

Descriptive: Same as TA-510 Mark I Negative Energy Torpedo.

Designation: !⁵ as in 9/CL.11!⁵, 10/CA.86!⁵, 8/S.7ad|rd|td|!⁵, etc.

Prerequisite: TA-513 Mark IV Negative Energy Torpedo and TA-813 Mark IV Anti-Sub-Warp Drive

Development Cost: 128 MT

Item Cost: 4 MT per torp/tube. Mounted on any warship with 7 to 16 long guns; 1 torpedo per long gun. Can be mounted on fortresses in banks of 8. The parent ship/fortress must carry at least TA-812 Mark III Anti-Sub-Warp Drive (iii).

When inoperable: Torpedo tubes are destroyed along with guns (p.133).

Narrative: The operational characteristics of the Mark V are the same as the Mark IV except it temporarily knocks out *all* TAs on a ship (enemy or friendly) for the 1 battle board turn immediately after the victim departs the Negative Energy Torpedo's blast pattern. The ability to enter pre-warp is not affected. The victim will regain basic maneuverability and gunfire/defense capability immediately. A ship in sub warp is forced into normal space the next battle board turn.

The reliability of the Mark V is degraded from the Mark IV (roll a 6-sided die):

1, 2, 3 = Torpedo explodes

4, 5, 6 = Torpedo fails to explode

The Mark IV Negative Energy Torpedo cannot be upgraded to the Mark V. The Mark V must be installed at full price and the earlier mark junked, sold or discarded.

TA-515 Mark VI Negative Energy Torpedo

Descriptive: Same as TA-510 Mark I Negative Energy Torpedo.

Designation: !⁶ as in 9/CL.11!⁶, 10/CA.86!⁶, 8/S.7ad|rd|td|!⁶, etc.

Prerequisite: TA-514 Mark V Negative Energy Torpedo

Development Cost: 128 MT

Item Cost: 4 MT per torp/tube. Mounted on any warship with 7 to 16 long guns; 1 torpedo per long gun. Can be mounted on fortresses in banks of 8. The parent ship/fortress must carry at least TA-812 Mark III Anti-Sub-Warp Drive (iii).

When inoperable: Torpedo tubes are destroyed along with guns (p.133).

Narrative: The operational characteristics of the Mark VI are the same as the Mark V except it destroys 2 specific TAs on any ship hit by or passing through the Negative Energy Torpedo's blast pattern: TA-600 series of Ambush Drive and TA-800 series of Sub-Warp Drive. As with the Mark V, the Mark VI temporarily knocks out *all* TAs on a ship (enemy or friendly) for the 2 battle board turns immediately after the victim departs the Negative Energy Torpedo's blast pattern. The ability to enter pre-warp is also forestalled for the 2 battle board turns. The victim will regain basic maneuverability and gunfire/defense capability immediately. A ship in sub warp is forced into normal space the next battle board turn.

The reliability of the Mark VI is the same as the Mark V (roll a 6-sided die):

1, 2, 3 = Torpedo explodes

4, 5, 6 = Torpedo fails to explode

The Mark V Negative Energy Torpedo cannot be upgraded to the Mark VI. The Mark VI must be installed at full price and the earlier mark junked, sold or discarded.

TA-516 Mark VII Negative Energy Torpedo

Descriptive: The Mark VII Negative Energy Torpedo is mainly used to eliminate other Negative Energy Torpedoes already emplaced on the battle board.

Designation: !⁷ as in 9/CS.11!⁷, 10/CA.86!⁷, 8/S.7ad|rd|td|!⁷, etc.

Prerequisite: TA-515 Mark VII Negative Energy Torpedo

Development Cost: 64 MT

Item Cost: 4 MT per torp/tube. Mounted on any warship with 8 to 16 long guns; 1 torpedo per long gun. Can be mounted on fortresses in banks of 8.

When inoperable: Torpedo tubes are destroyed along with guns (p.133).

Narrative: The operational characteristics of the Mark VII are that it can be fired into any of the earlier marks' blast patterns, which results in both torpedoes evaporating. If it hits a ship, the ship loses 1 TA, defender's choice. Negative Energy Torpedo Deflectors apply.

The Mark VII has the same angle of fire as a gun, i.e., only one 45° bend is allowed. The Mark VII has a range of 40 and a 1 x 1 square negative energy effect pattern. The torpedo must travel to at least range 4 before it is armed and able to explode. Reliability is 100%. The Mark VII has a 1-move life; it does not stay on the battle board like earlier marks..

The Mark VII Negative Energy Torpedo must be replaced at full cost; it cannot be upgraded from an earlier mark. Discard, junk or sell off the earlier mark.

TAs 517-519 Marks I-III

Negative Energy Torpedo Deflector

Descriptive: The Negative Energy Torpedo Deflector provides some protection for a ship from the effects of the TA-510 series of Negative Energy Torpedoes.

Designation: Mark I: nd as in 4/Z.12nd, 10/CB.85nd, c8/S.5nd, etc.

Mark II: nd² as in 4/Z.11nd², 10/CB.85nd², c8/S.6nd², etc.

Mark III: nd³ as in 4/Z.10nd³, 10/CB.85nd³, c8/S.7nd³, etc.

Prerequisite: Mark I: TA-510 Mark I Negative Energy Torpedo

Mark II: TA-517 Mark I Negative Energy Torpedo Deflector

Mark III: TA-518 Mark II Negative Energy Torpedo Deflector

Development Cost: Mark I: 64 MT

Mark II: 32 MT

Mark III: 16 MT

Item Cost: Mark I: 16 MT

Mark II: 24 MT

Mark III: 32 MT

May be mounted on any ship with 5 or more long guns.

When inoperable: When destroyed as per damage charts on p.133

Narrative: Provides partial protection against the effects of the TA-510 series of Negative Energy Torpedoes, all marks. Roll a 6-sided die:

Mark I: 1, 2, 3 = Ship protected

4, 5, 6 = nd fails, ship suffers effects of Negative Energy Torpedo

Mark II: 1, 2, 3, 4 = Ship protected

5, 6 = nd² fails, ship suffers effects of Negative Energy Torpedo

Mark III: 1, 2, 3, 4, 5 = Ship protected

6 = nd³ fails, ship suffers effects of Negative Energy Torpedo

The Negative Energy Torpedo Deflector must be replaced at full cost, it cannot be upgraded from an earlier mark. Discard, junk or sell off an earlier mark.

TA-520 Mark I Electromagnetic Burst Torpedo

Descriptive: The Mark I Electromagnetic Burst Torpedo uses inertial guidance and an electronic equipment sensing device to track the target. Its warhead consists of high-intensity electromagnetic radiation generated by a small nuclear blast that destroys electronic and electrical systems.

Designation: : (colon) as in 5/CA.12:, 10/CS.85:, 8/S.6ad|rd|hd|md|td|:, etc.

Prerequisite: TA-454 Mark V Unguided Torpedo (p.250)

Development Cost: 96 MT

Item Cost: 4 MT per gun – May be mounted on any ship with 1 to 10 guns.

When inoperable: Torpedo tubes are destroyed along with guns (p.133). Empty tubes are destroyed first. A deflector to combat this torpedo is described on p.170.

Narrative: A ship carries 1 Mark I Electromagnetic Burst Torpedo for each gun on the ship. TA-335 Double-Gun Warships (p.214) carry 1 torpedo per long gun; TA-343 Armored Cruiser carries 8 (p.216). The Mark I has a range of 20 in 1 move and is fired after ship movement on the battle board. Sequence of Events Chart, p.140. The torpedo fires along any of the 8 directions. A ship may fire only 1 torpedo per direction and only 1 torpedo at a single target. A torpedo has the option of passing through a ship in the way.

The small nuclear warhead has an attack factor in the 8 squares around the location of the torpedo blast that will destroy 4 TAs or 4 engines (attacker's choice) on the target ship. Defender chooses which TAs lost. The TA-377 series of Heliostatic Hellfire Machine suffers 3 hits from this torpedo. Opposing Electromagnetic Burst Torpedoes do not interact. Engine or TA hits on a stack of HS or LS, p.223, all count as hull hits.

The torpedo must travel at least 4 movement factors before it is armed and able to explode. It has a timed proximity fuse that will explode when the torpedo comes within 1 square of its intended target. The torpedo will travel through an *untargeted* ship, but will explode if it hits a planet, moon, ring, radiation belt, TA-490 series of Asteroid Torpedo already in place or TA-130 series of Torpedo Interceptors (p.166).

The torpedo has a significant failure rate, using a 6-sided die, as follows:

- 4, 5, 6 = Miss
- 1, 2, 3 = Hit, target loses 4 TAs or 4 engines, attacker's choice. Target picks TAs lost.

TA-110 Super Deflector (p.165) and TA-150 Universal Deflector (p.170) offer no protection against an electromagnetic burst. TA-344 Armored Warships – TAs (p.217) and TA-345 Armored Warships – Engines (p.217) are *not* effective against respective attacks. TA-343 Armored Cruiser's (p.216) armor is *not* effective. TA-155 series of Electromagnetic Burst Torpedo, p.170, offers varying degrees of protection.

All marks of the Electromagnetic Burst Torpedo are ineffective against all types of moon fortresses (p.235-245) or against a ship pushing a TA-410 Moon Buster asteroid (p.237). It can be used against any ship or war device capable of battle board movement.

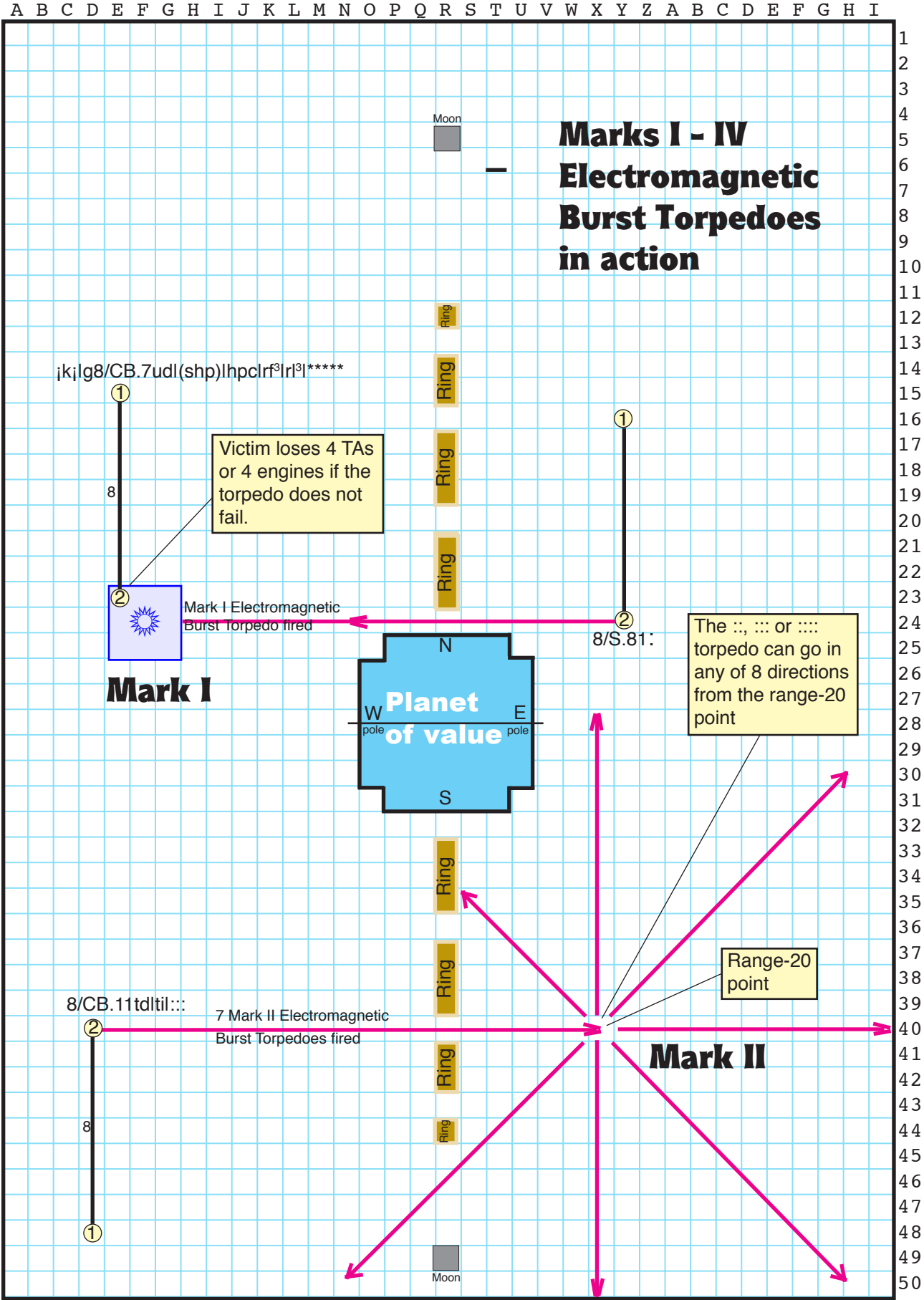
A Mark I Electromagnetic Burst Torpedo may be used to knock a ship out of pre-warp but does not damage the target if it does so. TA-700a to 700z Hallucination Projector (p.307) are effective against the Mark I. TAs 701 or 702 Marks I or II Anti-Hallucination Projector (p.307) on the parent ship do not increase the Mark I's accuracy.

Torpedo reloads are available only at a friendly production center star. Each Mark I reload is free. No time is required to reload, just warp in, land on the planet of value for 1 battle board turn and warp out. A ship cannot transfer torpedoes to another ship.

The Mark I cannot be upgraded to the Mark II. It must be replaced.

A ship can carry only 1 type of torpedo. An exception is TA-364 Torpedo Cruiser (p.222).

The illustration on the next page depicts how the Mark I and later marks function.



TA-521 Mark II Electromagnetic Burst Torpedo

Descriptive: Same as TA-520 Mark I Electromagnetic Burst Torpedo.

Designation: :: (colon) as in 5/CA.12::, 10/CS.85::, 8/S.6ad|rd|hd|md|td|::, etc.

Prerequisite: TA-520 Mark I Electromagnetic Burst Torpedo

Development Cost: 96 MT

Item Cost: 8 MT per gun – Must be mounted on a ship with 3 to 13 guns.

When inoperable: Torpedo tubes are destroyed along with guns (p.133).

Narrative: The characteristics of the Mark II are the same as the Mark I except that upon reaching range 20 (or less), the Mark II reprograms itself to travel a further range 18 along any of the 8 directions, except back toward its parent ship, from the original range-20 (or less) point. A ship may fire as many as 8 Mark II's (or later) to the range-20 (or less) point, but subsequently only 1 along a direction after that. Only 1 torpedo may be used against a target from range 4 to 20. A torpedo has the option of passing through a ship in the way.

There is no upgrading of existing Mark Is after the Mark II has been developed. They must be entirely replaced by the Mark II at full cost.

TA-522 Mark III Electromagnetic Burst Torpedo

Descriptive: Same as TA-520 Mark I Electromagnetic Burst Torpedo.

Designation: ::: (colon) as in 5/CA.12:::, 10/CS.85:::, 8/S.6ad|rd|hd|md|td|:::, etc.

Prerequisite: TA-522 Mark II Electromagnetic Torpedo

Development Cost: 16 MT

Item Cost: 8 MT per gun – Must be mounted on a ship with 3 to 13 guns.

When inoperable: Torpedo tubes are destroyed along with guns (p.133).

Narrative: The characteristics of the Mark III are the same as the Mark II except that the failure rate is reduced as follows:

- 5, 6 = Miss
- 1, 2, 3, 4 = Hit, lose 4 TAs or engines

A ship with Mark IIs can upgrade to the Mark III by warping into a friendly production center star and landing on the planet of value for 1 battle board turn. Upgrades are free.

TA-523 Mark IV Electromagnetic Burst Torpedo

Descriptive: Same as TA-520 Mark I Electromagnetic Burst Torpedo.

Designation: :::: (colon) as in 7/S.12::::, 10/CS.85::::, 8/S.6ad|rd|hd|md|td|::::, etc.

Prerequisite: TA-523 Mark III Electromagnetic Torpedo

Development Cost: 48 MT

Item Cost: 8 MT per gun – Must be mounted on a ship with 3 to 13 guns.

When inoperable: Torpedo tubes are destroyed along with guns (p.133).

Narrative: The characteristics of the Mark IV are the same as the Mark III except that the failure rate is reduced as follows:

- 6 = Miss
- 1, 2, 3, 4, 5 = Hit, lose 4 TAs or engines

A ship with Mark IIIs can upgrade to the Mark IV by warping into a friendly production center star and landing on the planet of value for 1 battle board turn. Upgrades are free.

TA-530 Mark I Gravity Bomb Torpedo

Descriptive: The Mark I Gravity Bomb Torpedo uses inertial guidance to travel in a straight line along one of the 8 directions toward the target. Its warhead consists of strange equipment based on quantum physics that generates a mini-black hole at the point of explosion. The mini-black hole emits a powerful gravity burst that warps the hull of nearby ships.

Designation: g as in 5/CA.12g, 10/DD.85g, 8/CB.16ad|rd|md|hd|gd|g, etc.

Prerequisite: TA-450 Mark I Unguided Torpedo

Development Cost: 100 MT

Item Cost: 6 MT per torpedo – May be mounted on any warship with 4, 6, 8 or 10 long or short guns. 1 torpedo is carried for every 2 guns. The CU or DD carries 2 g, the CL 3 g, the CA 4 g, and the CB 5 g. TA-343 Armored Cruiser (p.216) can carry 4 g.

When inoperable: 1 torpedo tube is destroyed for every 2 guns lost. Kill empties first.

Narrative: The Mark I Gravity Bomb Torpedo has a range of 24. It is fired at the same moment as guns. It travels along 1 of the 8 directions. A ship may fire its full complement of g's on the same battle board turn, but only 1 g in each direction. The torpedo must travel at least 8 movement factors before it is armed and able to explode. The g does not have a proximity fuse so may pass near, but not through, celestial objects or ships. It is aimed at a particular battle board square that lies along 1 of the 8 directions from the firing ship and that is where it will explode. The blast pattern measures 7 x 7 squares on the battle board. Damage to a target ship's hull is scored at the same moment as gun damage. The number of hull factors lost on a ship that is within the blast pattern ranges from 1 to 8 (illustration, next page). Overlapping blast patterns cancel each other.

Enemy Gravity Bomb Torpedoes do not interact when fired along an opposing track.

The TA-104 Gravity Deflector is 100% effective against the Mark I Gravity Bomb Torpedo, but only if it is mounted separately on a ship. TA-110 Super Deflector and TA-150 Universal Deflector are *not* effective by themselves. Effectiveness of TA-346 Armored Warships – Hull is as follows for all marks:

Die roll 1, 2, 3 – Armor prevents damage

Die roll 4, 5, 6 – **Armor fails** (score damage normally)

Torpedo reloads are available only at a friendly production center star. Each Mark I Gravity Bomb Torpedo reload costs 4 MT per torpedo. No time is required to reload, just warp in, warp out and consider it done. A ship can transfer torpedoes to another ship..

The illustration on the next page depicts how this torpedo functions.

TA-531 Mark II Gravity Bomb Torpedo

Descriptive: Same as the Mark I.

Designation: gg as in 5/CA.13gg, 10/DD.86gg, 8/CB.17ad|rd|md|hd|gd|gg, etc.

Prerequisite: TA-530 Mark I Gravity Bomb Torpedo

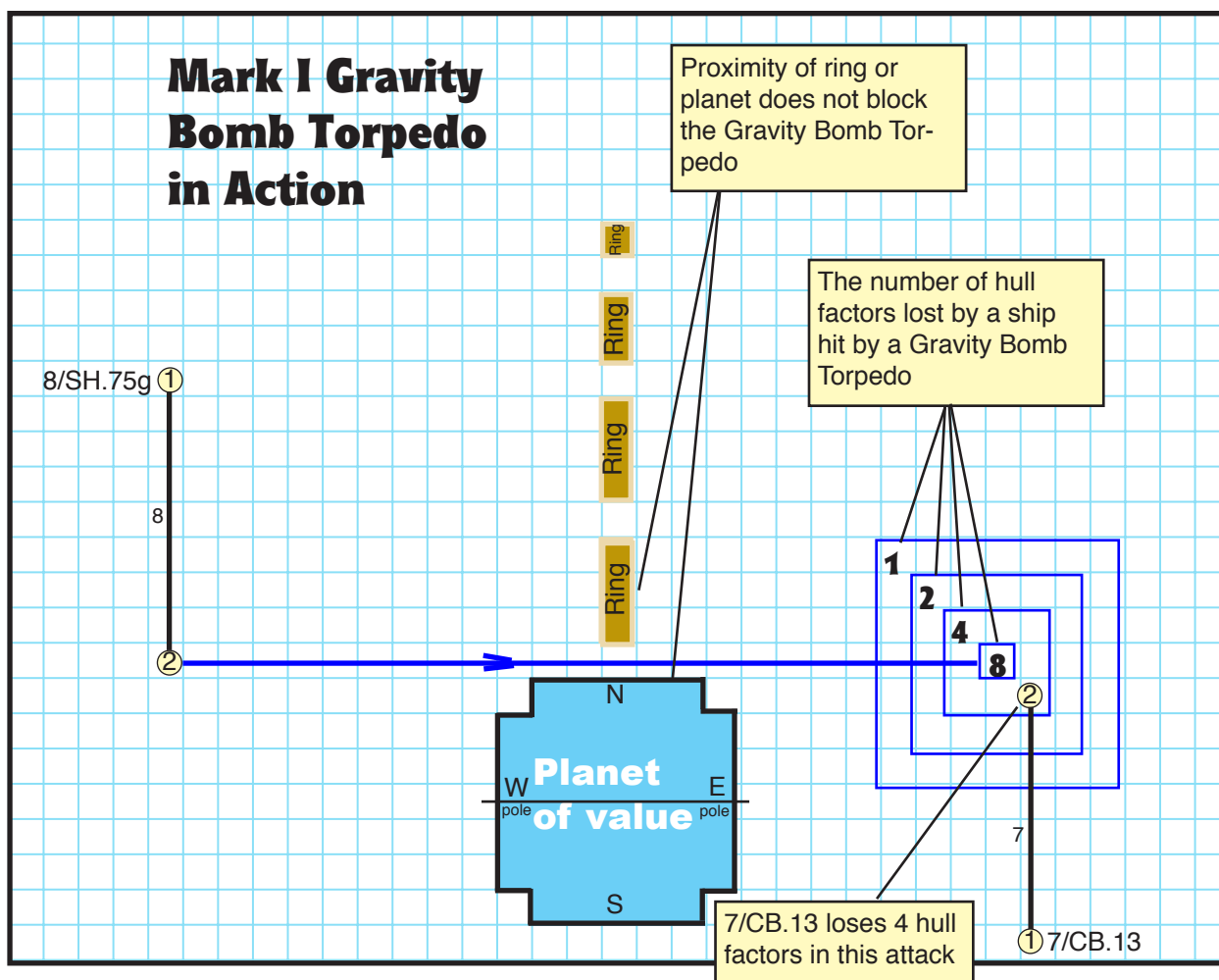
Development Cost: 32 MT

Item Cost: 6 MT per torpedo. Ships same as the Mark I.

When inoperable: Same as the Mark I.

Narrative: Same as the Mark I, except that the range is increased to 34.

The Mark I is automatically upgraded to the Mark II by a ship landing on the planet of value of a friendly production center star for 1 battle board move.



TAs 532, 533, 534 and 535

Marks III, IV, V and VI Gravity Bomb Torpedo

Descriptive: Same as the Mark I.

Designation: ggg, gggg, ggggg and gggggg (Marks III, IV, V and VI respectively) as in 5/CA.13ggg, 10/DD.86gggg, 8/CB.17ad|rd|md|hd|gd|ggggg, etc.

Prerequisite: Must be developed in order from the Mark II.

Development Cost: 32 MT

Item Cost: 6 MT per torpedo. Ships same as the Mark I.

When inoperable: Same as the Mark II except that TA-104 Gravity Deflector has decreasing effectiveness against succeeding marks as follows:

Mark I Gravity Bomb Torpedo – gd 100% effective

Mark II Gravity Bomb Torpedo – gd 100% effective

Mark III Gravity Bomb Torpedo – gd fails with die roll of 6

Mark IV Gravity Bomb Torpedo – gd fails with die roll of 5 or 6

Mark V Gravity Bomb Torpedo – gd fails with die roll of 4, 5 or 6

Mark VI Gravity Bomb Torpedo – gd fails with die roll of 3, 4, 5 or 6

Then roll
for hull
armor,
if any.

Narrative: Same as the Mark II, except as noted above.

Lower marks are upgraded to a higher mark by the parent ship landing on the planet of value of a friendly production center star for 1 battle board move.

TA-540 Mark I Dislocation Torpedo

Descriptive: The Mark I Dislocation Torpedo uses inertial guidance to travel in a straight line toward the target. Its warhead consists of a reality distortion field invented by a pimply-faced teenage computer geek in a dilapidated one-car garage using an ancient Apple IIe computer. The field instantly moves a warship to another location on the battle board.

Designation: ^ (shift 6) as in MF.32^, OMF.16^ or PF.8^

Prerequisite: None

Development Cost: 64 MT

Item Cost: 4 MT per torp/tube (1 tube per gun) – Must be mounted in groups of 8.

Can be mounted only on the following Fortresses:

- TA-401 Super Moon Fortress, p.236
- TA-420 Orbital Moon Fortress, p.238
- TA-1001 Super Planetary Fortress, p.430

When inoperable: Torpedo tubes are destroyed along with guns (p.133). Empty tubes are destroyed first.

Narrative: A fortress carries 1 Mark I Dislocation Torpedo for each gun.

The Mark I travels along a straight line in any one of the 8 possible directions until it reaches range of 20 in 1 move. The torpedo has a proximity fuse and will explode when it comes within 1 square of “something” or at the end of its run. It has a dislocation effect in the 8 squares around the exact location of the torpedo blast. The torpedo must travel at least 4 movement factors before it is armed and able to explode. Opposing Dislocation Torpedoes do not interact.

Here is what qualifies as “something” to explode the Dislocation Torpedo:

- Any celestial object, such as a planet, ring, radiation burst, etc.
- Any ship (enemy or friendly); the TA-130 series of Torpedo Interceptor doesn’t work
- TA-410 Moon Buster, p.237
- TAs 1111-1117 Moon-Crater Bomb, p.444
- TA-490 series Asteroid Torpedo, p.267, already in place

A fortress may fire all or some portion of its complement of Dislocation Torpedoes per battle board turn, but only 1 at any 1 target. Accuracy is 100%.

Here is what happens to objects within the Dislocation Torpedo’s blast pattern:

• Any ship(s) – Victim placed (after damage computations) at range 20 N, NE, E, SE, S, SW, W or NW (attacker’s choice) of present location. Victim may be hopped to other side of natural hazards. Victim may not be destroyed or jeopardized by relocation into or next to celestial object; reposition as necessary. Victim retains previous speed and course. Illustration, next page.

- TA-490 Asteroid Torpedo already in place – the asteroid vanishes.
- TA-410 Moon Buster’s asteroid vanishes
- TAs 1111-1117 Moon-Crater Bomb vanishes
- A white hole is unaffected; the Dislocation Torpedo becomes a dud
- Neutron Star, Dead Dwarf, planet, moon, ring, magnetic field, quantum aberrations or radiation belts/pulses/bursts – nothing.

The torpedo is fired after ship movement on the battle board is complete.

Each Mark I Dislocation Torpedo reload is free. Reloading is done between years; it cannot be done during a battle. A PF can reload even if the star is under blockade.

TAs 541, 542, 543, 544 & 545

Marks II, III, IV, V & VI Dislocation Torpedo

Descriptive: Same as TA-540 Mark I Dislocation Torpedo.

Designation: Mark II – ^^ as in OMF.16^^, MF.32^^ or PF.8^^

Mark III – ^^^ as in OMF.16^^^, MF.32^^^ or PF.8^^^

Mark IV – ^^^^ as in OMF.16^^^^, MF.32^^^^ or PF.8^^^^

Mark V – ^^^^^ as in OMF.16^^^^^, MF.32^^^^^ or PF.8^^^^^

Mark VI – ^^^^^^ as in OMF.16^^^^^^, MF.32^^^^^^ or PF.8^^^^^^

Prerequisite: TA-540 Mark I Dislocation Torpedo for the Mark II and must developed in sequence for the remainder.

Development Cost: 32 MT for each mark

Item Cost: 4 MT per torp/tube (1 tube per gun) – Must be mounted in groups of 8.

Can be mounted only on the following Fortresses:

- TA-401 Super Moon Fortress, p.236
- TA-420 Orbital Moon Fortress, p.238
- TA-1001 Super Planetary Fortress, p.430

When inoperable: Torpedo tubes are destroyed along with guns (p.133).

Narrative: Early marks are automatically upgraded to later marks if the parent ship lands on the planet of value of a friendly production center star for 1 battle board move.

Mark II

The operational characteristics of the Mark II are the same as the Mark I except that the torpedo's range is increased to 26 and the distance a victim is dislocated is raised to 26 in any of 8 directions (attacker's choice). Use Mark I's restrictions.

Mark III

The operational characteristics of the Mark III are the same as the Mark II except that the torpedo's range is increased to 34 and the distance a victim is dislocated is raised to 34 in any of 8 directions (attacker's choice). Use Mark I's restrictions.

Mark IV

The operational characteristics of the Mark IV are the same as the Mark III except that the torpedo's range is increased to 38 (on the diagonals) and 39 (N, S, E and W) and the distance a victim is dislocated is raised to 40 in any of 8 directions (attacker's choice). Use Mark I's restrictions.

Mark V

The operational characteristics of the Mark V are the same as the Mark IV except that the Mark V can place the victim anywhere up to range 40 from its original location. Victim may be hopped to other side of natural hazards. Victim may not be destroyed or jeopardized by relocation into or next to celestial object; reposition as necessary. Victim retains previous speed and course.

Mark VI

The operational characteristics of the Mark VI are the same as the Mark V except that the Mark VI can place a victim into a white hole (see TA-550 series of White Hole Torpedo, p.291-296). If 2 or more victims are sent simultaneously into a white hole, the victims are destroyed. The white hole must have been established on a previous battle board turn.

TAs 546, 547, 548 and 549

Marks I, II, III and IV Dislocation Torpedo Shield

Descriptive: Provides partial protection for a ship against the Dislocation Torpedo.

Designation: Mark I: (^) as in 5/Z.12(^), 10/P.85(^) or 8/S.6ad|rd|td|^^^^(^), etc.

Mark II: (^^) as in 5/Z.12(^^), 6/DN.85(^^) or 8/S.6ad|rd|td|(^^^), etc.

Mark III: (^^^ as in 5/Z.12(^^^), 6/TU.85(^^^ or 8/S.6ad|rd|(^^^), etc.

Mark IV: (^^^^) as in 5/Z.12(^^^^), 7/DR.85(^^^^) or 8/S.6sd(^^^^), etc.

Prerequisite: Mark I: TA-540 Mark I Dislocation Torpedo

Mark II: TA-546 Mark I Dislocation Torpedo Shield

Mark III: TA-547 Mark II Dislocation Torpedo Shield

Mark IV: TA-548 Mark III Dislocation Torpedo Shield

Development Cost: Mark I: 128 MT

Mark II: 96 MT

Mark III: 64 MT

Mark IV: 32 MT

Item Cost: Mark I: 8 MT Limited to ship with 8 or more guns.

Mark II: 16 MT Limited to ship with 8 or more guns.

Mark III: 24 MT Limited to ship with 8 or more guns.

Mark IV: 32 MT Limited to ship with 8 or more guns.

When inoperable: As per damage chart on p.133.

Narrative: The Dislocation Torpedo Shield provides partial protection against the effects of all marks of the Dislocation Torpedo as follows:

Mark I

Die roll: 1, 2, 3, 4 – Dislocation Torpedo hits target

Die roll: 5, 6 – Dislocation Torpedo is a dud

Mark II

Die roll: 1, 2, 3 – Dislocation Torpedo hits target

Die roll: 4, 5, 6 – Dislocation Torpedo is a dud

Mark III

Die roll: 1, 2 – Dislocation Torpedo hits target

Die roll: 3, 4, 5, 6 – Dislocation Torpedo is a dud

Mark IV

Die roll: 1 – Dislocation Torpedo hits target

Die roll: 2, 3, 4, 5, 6 – Dislocation Torpedo is a dud

Not upgradeable. Obsolete mark must be junked or sold and replaced at full cost. Upgrade routine requires ship to land on the planet of value at a production center star for 1 full battle board turn.

TA-550 Mark I White Hole Torpedo

Descriptive: The Mark I White Hole Torpedo uses inertial guidance to travel in a straight line toward the target. Its warhead consists of a 1-year white hole that instantly transports a ship away from a star to another location far, far away..

Designation: x as in 10/SH.12x, 10/DD.86ad|rd|hd|md|x, 7/CA.6ad|rd|x, etc. The number of torpedoes actually on board should be noted separately if less than a full because of combat expenditures; must be built with a full complement.

Prerequisite: TA-450 Mark I Unguided Torpedo, p.247.

Development Cost: 128 MT

Item Cost: 8 MT per torpedo – Must be mounted on a warship that has 4, 6 or 8 long guns or on a fortress in 8-gun banks. Also mounted on a variety of specialized ships as described with each of those TAs. A ship carries 1 Mark I White Hole Torpedo for each 2 guns.

When inoperable: All White Hole Torpedoes are destroyed as a single TA (p.133).

Narrative: The White Hole Torpedo is fired along any 1 of the 8 directions available to a range of 20. Arming distance is range 4. The White Hole Torpedo fires at the same time as other torpedoes (after movement). Ships may fire all Mark I White Hole Torpedoes in 1 turn, but only 1 at the same square. A white hole cannot be entered from Sub-Warp (p.308).

The Mark I creates a white hole effect in a single square on the battle board that lasts through the end of a year and vanishes between years. The target square may not contain a ship or celestial object. Any ship of 40 guns or smaller that has unlimited warp drive may enter a white hole safely; other ships or scouts and/or torpedoes, etc., are destroyed without effect upon anything else entering the white hole that same battle board turn or thereafter.

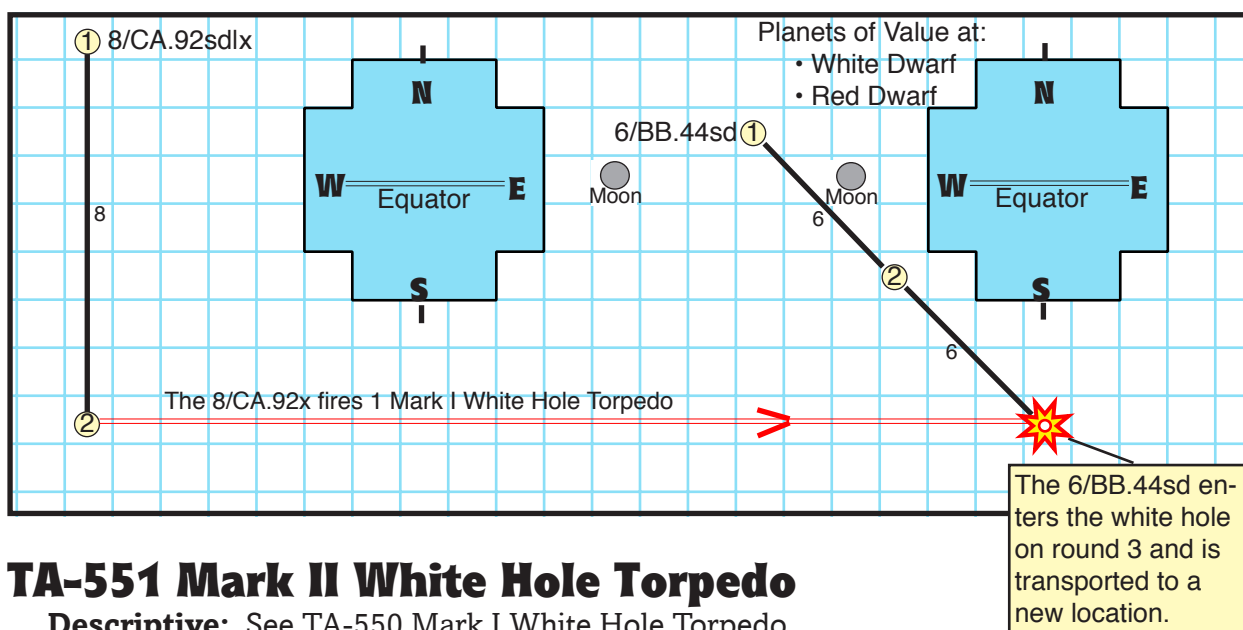
If 2 ships enter a white hole on the same battle board turn, both are destroyed. This applies only to ships that would otherwise transit a white hole safely. A ship cannot move directly from sub-warp into a white hole without a 1-turn sojourn in normal space.

A white hole instantly transports a ship to a featureless deep space star chart square that is range 32 east of the departure star. If the new star chart square is occupied by a star or gas cloud, move around up to range 8 until an empty square is found. Failing that, go west or even north or south. Never move off the edge/boundary of the main map. Isolated map *sections* require white hole exit to a far corner of the same map section. Each star will have a unique white hole exit point.

All ships exiting 1 or more white holes at a star will be placed in tight groups with hostile formations at range 50 to 56 from each other. Initial ship movement from those positions will be in any direction at legend speed. Weapons cannot be fired from initial positions. A ship cannot enter pre-warp or Sub-Warp on its first battle board move.

If a ship uses a White Hole Torpedo to escape enemy forces at its new location, it will move to the next open star chart square to the west (or east, north or south, if necessary). This process can be repeated until somebody runs out of White Hole Torpedoes or somebody quits pursuing. No torpedo, except the TA-510 series of Negative Energy Torpedo (p.277-281), has any effect upon a white hole.

Torpedo reloads are available only at a friendly production center star. Each Mark I White Hole Torpedo reload is free. No time is required to reload, just warp in, land for 1 turn on the planet of value even if it under blockade, warp out and consider it done. A ship can transfer White Hole Torpedoes to another ship



TA-551 Mark II White Hole Torpedo

Descriptive: See TA-550 Mark I White Hole Torpedo.

Designation: xx as in 10/SH.12xx, 10/DD.86ad|rd|hd|md|xx, 7/CA.6ad|rd|xx, etc.

Prerequisite: TA-550 Mark I White Hole Torpedo

Development Cost: 8 MT

Item Cost: 8 MT per torpedo – Must be mounted on a warship that has 4, 6 or 8 long guns or on a fortress in 8-gun banks. Also mounted on a variety of specialized ships as described with each of those TAs. A ship carries 1 Mark II White Hole Torpedo for each 2 guns.

When inoperable: All White Hole Torpedoes, regardless of mark and number on board, are destroyed as a single TA (p.133).

Narrative: The Mark II is identical to the Mark I, except that range is increased to 30. The Mark I is automatically upgraded to the Mark II by landing for 1 battle board turn on the planet of value at a friendly production center star, even if it is under blockade.

TA-552 Mark III White Hole Torpedo

Descriptive: See TA-550 Mark I White Hole Torpedo.

Designation: xxx as in 10/SH.12xxx, 10/DD.86ad|rd|hd|md|xxx, 7/CA.6ad|rd|xxx

Prerequisite: TA-551 Mark II White Hole Torpedo

Development Cost: 4 MT

Item Cost: 8 MT per torpedo – Must be mounted on a warship that has 4, 6 or 8 long guns or on a fortress in 8-gun banks. Also mounted on a variety of specialized ships as described with each of those TAs. A ship carries 1 Mark III White Hole Torpedo for each 2 guns.

When inoperable: All White Hole Torpedes, regardless of mark and number on board, are destroyed as a single TA (p.133).

Narrative: The Mark III is identical to the Mark II, except that range is increased to 40. The Mark II is automatically upgraded to the Mark III by landing for 1 battle board turn on the planet of value at a friendly production center star, even if it is under blockade.

TA-553 Mark IV White Hole Torpedo

Descriptive: The Mark IV White Hole Torpedo uses inertial guidance and a sentence sensing homing device to find the target. Its warhead consists of a momentary white hole that instantly transports a hostile ship to a location far, far away.

Designation: xxxx as in 10/SH.12xxxx, 10/CA.86ad|rd|hd|md|xxxx, 7/CH.6ad|rd|xxxx, etc. The number of torpedoes actually on board should be noted separately if less than a full complement.

Prerequisite: TA-552 Mark III White Hole Torpedo and TA-471 Mark I Homing Torpedo, p.257.

Development Cost: 96 MT

Item Cost: 8 MT per torpedo – Must be mounted on a warship that has 4, 6 or 8 long guns or on a fortress in 8-gun banks. Also mounted on a variety of specialized ships as described with each of those TAs. A ship carries 1 Mark IV White Hole Torpedo for each 2 guns.

When inoperable: All tubes/torpedoes destroyed as single TA (Damage Chart, p.133).

Narrative: The Mark IV has the same angle of fire as a gun, i.e., only one 45° bend is allowed, out to range 30. Like gunfire, the exact course the Mark IV follows to the target square is not plotted, although it must travel around obstructions that would otherwise prevent its arrival on target. A ship may fire all of its Mark IV White Hole Torpedoes in a single turn, but each must be fired at a different target (either friendly or hostile).

The Mark IV creates a 1-turn white hole effect around the target ship that encompasses a single square on the battle board. The target ship is transported to a location as described with the Mark I White Hole Torpedo, p.291.

The torpedo must travel at least 4 movement factors before it is armed and able to create the white hole around the target ship. The torpedo is fired after ship movement on the battle board is complete. See Sequence of Events chart, p.140.

The Mark IV has a 33% chance of homing in on its target: Die roll 1, 2 = hit
3, 4, 5, 6 = miss

Roll again for effectiveness of TAs 130-132 Torpedo Interceptors, p.167-168. Also, the TA-700 series of Hallucination Projector (p.307) is effective against the White Hole Torpedo.

The target may not be a celestial object, such as a moon or magnetic field. Any ship that does not have unlimited warp drive is destroyed, such as the TA-360 Solar System Defense Ship (p.221), the 1-gun Light Scout and 2-gun Heavy Scout discussed with TAs 370-373 (p.223-225) and the TA-377 series of Heliostatic Hellfire Machine (p.226). TA-1100 series of Doomsday Starships are too big to move so are immune to the effects of the Mark IV and later White Hole Torpedo.

No White Hole Torpedo of any mark has any effect on a ship in pre-warp or sub-warp, but will knock the target ship out of pre-warp. The Mark IV White Hole Torpedo is effective against a ship caught in a time stasis created by the TA-560 series of Time Stasis Torpedo (p.297). The ship will be in time stasis at the new location.

Torpedo reloads are available only at a friendly production center star. Each Mark IV White Hole Torpedo reload is free. No time is required to reload, just warp in, land on the planet of value for 1 battle board turn, warp out and consider it done.

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TA-554 Mark V White Hole Torpedo

Descriptive: Same as for the Mark IV White Hole Torpedo.

Designation: xxxxx as in 10/CU.12xxxxx, 10/DD.86ad|rd|hd|md|xxxxx, 7/DR.6ad|rd|xxxxx, etc. The number of torpedoes actually on board should be noted separately if less than a full complement.

Prerequisite: TA-553 Mark IV White Hole Torpedo

Development Cost: 48 MT

Item Cost: 8 MT per torpedo – Must be mounted on a warship that has 4, 6 or 8 long guns or on a fortress in 8-gun banks. Also mounted on a variety of specialized ships as described with each of those TAs. A ship carries 1 Mark V White Hole Torpedo for each 2 guns.

When inoperable: All White Hole Torpedoes, regardless of mark and number on board, are destroyed as a single TA (p.133).

Narrative: Exactly the same operational characteristics as the Mark IV, except that the range is increased to 40 and the chance of a hit is greater. Die roll 1, 2, 3 = hit
4, 5, 6 = miss

TA-555 Mark VI White Hole Torpedo

Descriptive: Same as for the Mark IV White Hole Torpedo.

Designation: xxxxxx as in 10/SH.12xxxxxx, 10/DD.86ad|rd|hd|md|xxxxxx, 7/CH.6ad|rd|xxxxxx, etc. The number of torpedoes actually on board should be noted separately if less than a full complement.

Prerequisite: TA-554 Mark V White Hole Torpedo

Development Cost: 32 MT

Item Cost: 8 MT per torpedo – Must be mounted on a warship that has 4, 6 or 8 long guns or on a fortress in 8-gun banks. Also mounted on a variety of specialized ships as described with each of those TAs. A ship carries 1 Mark VI White Hole Torpedo for each 2 guns.

When inoperable: All White Hole Torpedoes, regardless of mark and number on board, are destroyed as a single TA (p.133).

Narrative: Exactly the same operational characteristics as the Mark V, except that the chance of a hit is greater. Die roll 1, 2, 3, 4 = hit
5, 6 = miss

TA-557, 558 and 559

Marks I, II and III White Hole Torpedo Shield

Descriptive: The White Hole Torpedo Shield provides partial protection for a ship against the effects of a White Hole Torpedo of any mark.

Designation: (x), (xx) or (xxx) as in 10/SH.12(x), 10/DD.86ad|rd|hd|md|(xx), 7/DR.6ad|rd|(xxx), etc.

Prerequisite: TA-550 Mark I White Hole Torpedo.

Development Cost: 32 MT for each mark. Must be developed in sequence.

Item Cost: 8 MT for Mark I, 12 MT for Mark II and 24 MT for Mark III – May only be mounted on a warship of 8 or more guns, including the TA-364 Torpedo Cruiser (p.222), TA-343 Armored Cruiser (p.216) and TA-1245 Pattrolle Cruiser, P.466 .

When inoperable: Destroyed as a TA according to Damage Table on p.133.

Narrative: Provides protection for a ship against the effects of any mark of White Hole Torpedo. A ship carrying the (x) can turn off the shield at any time.

Mark I, die roll: 1, 2 = Shield effective

3, 4, 5, 6 = Shield fails

Mark II, die roll: 1, 2, 3 = Shield effective

4, 5, 6 = Shield fails

Mark III, die roll: 1, 2, 3, 4, 5 = Shield effective

6 = Shield fails

TA-560 Mark I Time Stasis Torpedo

Descriptive: The Mark I Time Stasis Torpedo uses inertial guidance to travel in a straight line along any of the 8 directions toward the target. Its warhead consists of a time-stasis field that freezes unharmed a warship in place for 1 turn on the battle board. Later marks increase the amount of time the victim remains in time stasis.

Designation: † (option t) as in 5/SH.12†, 10/DD.85†, etc.

Prerequisite: None

Development Cost: 128 MT.

Item Cost: 8 MT per torpedo – Must be mounted a warship that has 4, 8 or 12 guns and is limited specifically to the SH, DD, CA or CH listed on p.131 and the following ships: TA-364 Torpedo Cruiser (p.222), TA-343 Armored Cruiser (p.216), TA-1240 Super Armored Cruiser, SCA only, p.463, TA-1243 Protected Cruiser, p.464, TA-1244 Unprotected Cruiser, p.465, TA-1246, Pygmy Patrolle Cruiser, p.467, TA-1245 Patrolle Cruiser, p.466, TA-1280 Command Cruiser, p.475, TA-401 Super Moon Fortress (p.236), TA-421 series of Orbital Moon Fortress (p.238) or TA-1001 Super Planetary Fortress, p.430. Ship carries 1 Mark I Time Stasis Torpedo for each 4 guns on the ship.

When inoperable: All Time Stasis Torpedoes, regardless of mark and number on board, are destroyed as a single TA (p.133).

Narrative: The Mark I Time Stasis Torpedo is fired along any 1 of the 8 directions available to a range of 38.

The torpedo has a proximity fuse and will “explode” the instant it comes anywhere along its course within 1 square of:

- A celestial object, such as a planet, moon, dead dwarf, dust ring, magnetic field, radiation burst, etc.
- Any ship (enemy or friendly)
- TA-490 series Asteroid Torpedo already in place
- TA-510 series of Negative Energy Torpedo (p.297-299) prevents a Time Stasis Torpedo from exploding
- TA-550 series of White Hole Torpedo will not affect a ship caught in a time stasis.
- The Time Stasis Torpedo has no effect on a ship in pre-warp, except to knock that ship out of pre-warp.
- Opposing Time Stasis Torpedoes do not interact.

The Mark I creates a 1-move time stasis effect in a 3 x 3 pattern centered around the point of “blast” on the battle board. The torpedo must travel at least 4 movement factors before it is armed. The torpedo is fired after ship movement on the battle board is complete.

Any ship that is hit by the Mark I Time Stasis Torpedo is locked in an unmoving time stasis for 1 move on the battle board for the next move after it is hit. The targeted ship cannot move, fire guns or use any TAs. The ship and its time stasis field are a “hard” phantom that must be avoided by weapons and ships much as a moon. The ship is invulnerable to any attack or collision (the colliddee is unharmed, the collider is destroyed).

A ship freed from a time stasis field resumes its former speed and direction of travel.

Torpedo reloads are available only at a friendly production center star. Each Mark I Time Stasis Torpedo reload is free. No time is required to reload, just warp in, warp out and consider it done. A ship can transfer torpedoes to another ship.

The illustration on the next page depicts how this torpedo functions.

TA-561 Mark II Time Stasis Torpedo

Descriptive: Same as the Mark I.

Designation: †† (option tt) as in 5/SH.12††, 10/DD.85††, etc.

Prerequisite: TA-560 Mark I Time Stasis Torpedo

Development Cost: 4 MT

Item Cost: 4 MT per torpedo – Only 1 torpedo carried for every 4 guns. The Mark II is limited to the same ships as the Mark I.

When inoperable: All Time Stasis Torpedoes, regardless of mark and number on board, are destroyed as a single TA (p.133).

Narrative: Same as the Mark I, except that the target's time stasis lasts for 2 moves. A Mark I is upgraded to a Mark II by landing on the planet of value of a production center star for 1 battle board move.

TA-562 Mark III Time Stasis Torpedo

Descriptive: Same as the Mark I.

Designation: ††† (option ttt) as in 5/SH.12†††, 10/DD.85†††, etc.

Prerequisite: TA-561 Mark II Time Stasis Torpedo

Development Cost: 4 MT

Item Cost: 4 MT per torpedo – Only 1 torpedo carried for every 4 guns. The Mark III is limited to the same ships as the Mark I.

When inoperable: All Time Stasis Torpedoes, regardless of mark and number on board, are destroyed as a single TA (p.133).

Narrative: Same as the Mark II, except that the target's time stasis lasts for 4 moves.

TA-563 Mark IV Time Stasis Torpedo

Descriptive: Same as the Mark I.

Designation: †††† (option tttt) as in 5/SH.12††††, 10/DD.85††††, etc.

Prerequisite: TA-562 Mark III Time Stasis Torpedo

Development Cost: 8 MT

Item Cost: 4 MT per torpedo – 1 torpedo carried for every 4 guns. The Mark IV is limited to the same ships as the Mark I.

When inoperable: All Time Stasis Torpedoes, regardless of mark and number on board, are destroyed as a single TA (p.133).

Narrative: Same as the Mark III, except that the target's time stasis lasts 8 moves.

TA-564 Mark V Time Stasis Torpedo

Descriptive: Same as the Mark I.

Designation: ††††† (option tttt) as in 5/SH.12†††††, 10/DD.85†††††, etc.

Prerequisite: TA-563 Mark IV Time Stasis Torpedo

Development Cost: 8 MT

Item Cost: 4 MT per torpedo – 1 torpedo carried for every 4 guns. The Mark V is limited to the same ships as the Mark I.

When inoperable: All Time Stasis Torpedoes, regardless of mark and number on board, are destroyed as a single TA (p.133).

Narrative: Same as the Mark IV, except that the target's time stasis lasts 16 moves. Also, torpedo can pass near obstructions and explode 1 square away from the target ship.

TA-567, 568 and 569

Marks I, II and III Time Stasis Torpedo Shield

Descriptive: Neutralizes all marks of Time Stasis Torpedo.

Designation: (†), (††) or (†††) (option t) as in 9/CS.92(†), 6/Z.85(††), 7/DA.113(†), etc.

Prerequisite: TA-560 Mark I Time Stasis Torpedo

Development Cost: 32 MT for each mark.

Item Cost: 4 MT for Mark I, 6 MT for Mark II and 8 MT for Mark III – Must be mounted on a ship having 5 or more guns.

When inoperable: Destroyed as a TA according to damage table on p.133.

Narrative: Provides protection for a ship against the effects of any mark of Time Stasis Torpedo. A ship carrying the (†) can turn off the shield at any time.

- | | |
|---------------------|-------------------------------|
| Mark I, die roll: | 1, 2 = Shield effective |
| | 3, 4, 5, 6 = Shield fails |
| Mark II, die roll: | 1, 2, 3 = Shield effective |
| | 4, 5, 6 = Shield fails |
| Mark III, die roll: | 1, 2, 3, 4 = Shield effective |
| | 5, 6 = Shield fails |

TA-570 Mark I Mine

Descriptive: The Mark I Mine is a simple drop-off explosive device with a proximity fuse that causes it to explode when anything gets within 2 squares of its location.

Designation: m as in 7/CS.44m¹⁰, 8/DN.35m²⁶, 6/CA.15m¹⁶ (the superscript number indicates the number on board).

Prerequisite: None.

Development Cost: 48 MT

Item Cost: 1 MT for each mine carried. 2 Mines per gun. Limited to ship with 5 *short* guns or larger.

When inoperable: Mines count as a TA. When the Mine TA on a ship is destroyed, the parent ship explodes into little tiny pieces that glitter forlornly under the alien sun.

Narrative: The Mark I Mine is dropped behind a warship moving at speed 6 or faster on the battle board. The blast pattern is 5 x 5 on the battle board. The attack factor is 21 in the center, 14 on the inner ring and 6 in the outer ring (illustration of more powerful Mark II is on page 222). The Mine is activated the turn after it is placed. A Mine is visible to *all* ships on the battle board. Ship emplaced Mark I Mines are lost in space the year after emplacement.

The Mine will explode whenever a hostile 3-gun ship or larger or merchant of any size travels over its potential blast pattern. Hostile Fighters, friendly ships and torpedoes of any type or ownership do not explode a Mine.

Mines are duds if they are emplaced with their blast patterns overlapping with each other or anything else. Duds do not appear on the battle board.

Mines do not present an obstruction to gunfire, TA-377 series of Heliostatic Hellfire Machines, or TA-350 series of Plasma Gun Warship, although a Hellfire Machine's blast will destroy any Mines within its blast pattern. The asteroid hurled by an enemy TA-410 Moon Buster is knocked off course and lost when it travels over and explodes a Mine.

The TA-120 series of Torpedo Deflector and TA-196 series of Armor is effective against a Mine's blast.

TA-571 Mark II Mine

Descriptive: See Mark I Mine.

Designation: mm as in 7/CS.44mm¹⁰, 8/DN.35mm²⁶, 6/CA.15mm¹⁶ (the superscript number indicates the number on board).

Prerequisite: None.

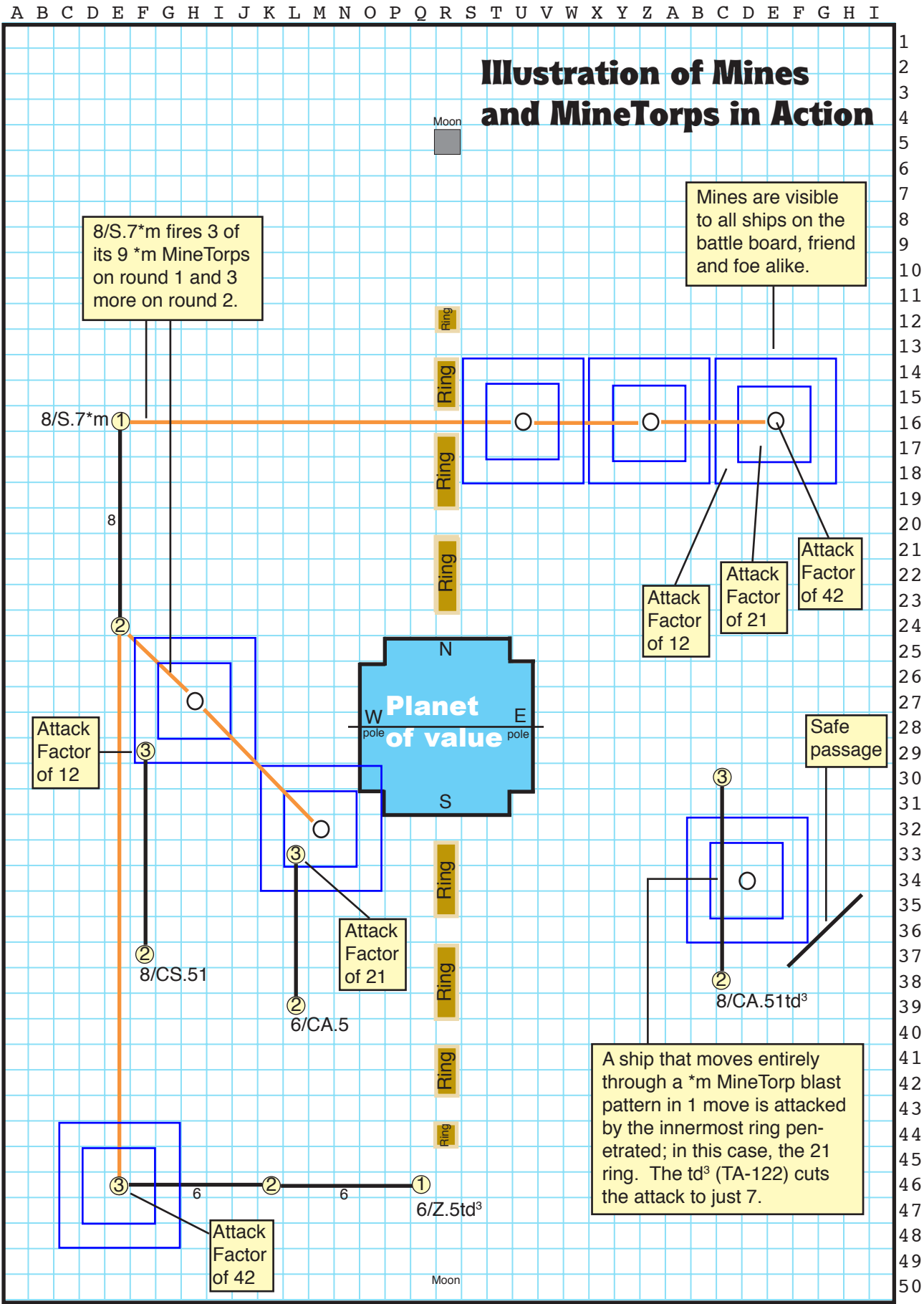
Development Cost: 96 MT

Item Cost: 2 MT for each mine carried. 2 Mines per gun. Limited to ship with 5 *short* guns or larger.

When inoperable: Mines count as a TA. When the Mine TA on a ship is destroyed, the parent ship explodes into little tiny pieces that glitter forlornly under the alien sun.

Narrative: The Mark II Mine is the same as the Mark I except that the attack factor is doubled to 42, 21 and 12 (illustration p.300). Item Cost is doubled to 2 MT each.

There is no automatic upgrading of existing Mark I's after the Mark II has been developed. A ship with Mark I's must warp into and out of a friendly production center star, after which the Mines are upgraded at no cost. No stopping time is required.



TA-572 MineTorp

Descriptive: See TA-453 Mark IV Unguided Torpedo and TA-571 Mark II Mine. Both principles are combined to form 1 TA.

Designation: *m as in 7/CS.44*m, 8/DN.35*m, 6/CA.15ud/td³/rf³/rl³/*m, etc.

Prerequisite: TA-453 Mark IV Unguided Torpedo and TA-571 Mark II Mine.

Development Cost: 48 MT

Item Cost: 6 MT per torp/tube – must be mounted on a warship with 3 to 10 guns.
Mount 1 per gun.

When inoperable: Mines count as a TA. When the Mine TA on a ship is destroyed, the parent ship explodes into little tiny pieces.

Narrative: The *m MineTorp operates as a TA-453 Mark IV Unguided Torpedo except that it stops at the end of its speed 36 run and morphs into a TA-571 Mark II Mine with additional capabilities. The special capability is that the MineTorp will *not* explode when a friendly SMF, ship, Scout, Spy or torpedo passes through it. However, it *will* explode when any hostile SMF, ship, Scout, Spy or torpedo passes through it. The advantage is that a player can use the MineTorp to set up a barrier.

The *m MineTorp is activated for the turn following emplacement. A ship carries 1 Mine Torp per gun. In all other respects it is identical to the Mark II Mine and appears as such on the battle board. Illustration p.302.

This weapon must be installed on a ship that lacks a torpedo of any type or minelaying capability. A pre-installed TA that must be removed before this TA can be installed can be junked at a production center star.

The TA-120 series of Torpedo Deflector and TA-196 series of Armor are effective against a Mine's blast.

TA-579 Torpilleur Capability (MineTorp)

Descriptive: Allows a ship to carry twice the number of MineTorps and tubes than it normally would.

Designation: _ (underline) as in 5/S.12 , 10/CS.85 , etc.FIX ME, FIX ME, FIX

Prerequisite: TA-572 MineTorp

Development Cost: 4 MT

Item Cost: 12 MT for 2 torps and 2 tubes, e.g., 96 MT for an 8-gunner – May be mounted on any warship with 4 to 10 guns.

When inoperable: Mines count as a TA. When the Mine TA on a ship is destroyed, the parent ship explodes into little bitty chunks of shrapnel.

Narrative: A ship carries 2 torpedoes and 2 tubes for each gun. The entire complement of MineTorps may be fired in a single salvo. All other operational characteristics of MineTorps are unchanged.

A ship upgraded to have Torpilleur Capability (MineTorp) must warp into and out of a friendly production center star, after which the ship is considered upgraded. No stopping time is required. The full 12 MT per tube must be paid for the upgrade. The ship size requirement must be respected.

TA-598 Torpedo Gatling (Quick-Fire Mechanism)

Descriptive: The Torpedo Gatling (Quick-Fire Mechanism) allows a ship to fire multiple torpedoes at one target during the same battle board round. This TA enhances the effectiveness of certain types of torpedoes against various defensive measures, such as the TA-120 series of Torpedo Deflector, TA-130 series of Torpedo Interceptor, TA-700 series of Hallucination Projector and others.

Designation: tg as in |k| |zz8/CA.44.....tg| ad| rd| sd| td| rf| rl, etc., the tg designation is placed immediately after the torpedo's designation without the dividing vertical line (|) that is normally used to separate TA acronyms.

Prerequisite: Any of the Mark V torpedoes listed below or the Mark IV White Hole Torpedo.

Development Cost: 48 MT. May not be developed until third Katun..

Item Cost: Doubles cost of ship's torpedo suite, not including Torpilleur Capability.

When inoperable: Mounted as separate TA that is lost as per damage chart (p.133).

Narrative: The Torpedo Gatling (tg) works with certain torpedoes to allow multiple shots at 1 target during a single battle board round. After computing the number of hits after all defensive measures have been deployed, the attack factor of all torpedo hits on the target are combined to form a single attack factor (p.133). A ship can fire as many torpedoes as it carries at a single target, but always deploy defensive measures 1 at a time against the incoming torpedoes.

The tg can be paired with the following torpedoes:

- TA-454 Mark V Unguided Torpedo, including Torpilleur Capability. Allows up to 3 full-power ($36 \times 3 = 108$) hits on a single target, providing defender is sufficiently overwhelmed.
- TA-474 Mark V Homing Torpedo, including Torpilleur Capability
- TA-484 Mark V Toss Torpedo, including Torpilleur Capability. Allows multiple torpedoes to be aimed along same track so that target may be attacked multiple times.
- TA-520 series of Electromagnetic Burst Torpedo, all marks. Only 1 hit counts.
- TA-540 series of Dislocation Torpedo, all marks. Only 1 hit counts.
- TAs 553-555 Marks IV, V and VI White Hole Torpedo.
- TA-560 series of Time Stasis Torpedo, all marks. Only 1 hit counts.

The tg can be mounted on an existing warship by warping in and out of a production-center star. No time delay; just pay the cost. Additionally, a ship that carries a higher mark may downgrade in deep space to the Mark V at no cost or time lost

Chapter 16



Deception Devices



TA-600a to 600zz Ambush Drives

Descriptive: An Ambush Drive is a highly specialized auxiliary engine fitted to a ship that gives it marginal speed superiority in an extended chase over a ship with a lesser mark. The Ambush Drive also allows a ship to burrow into a planet's or moon's crustal surface and lie in ambush. There are 52 marks of Ambush Drives. Each provides a slight extended chase speed enhancement over the previous mark as well as other benefits.

Designation: a, b, c to x, y, z and aa, bb, cc to xx, yy, zz as in a5/Z.12, b7/CS.85, jk| ww9/S.6ad|rd|hd|md|gd, etc.

Prerequisite: Marks must be developed in sequence, a through z and aa through zz.

Development Cost: 128 MT for the Mark I and 4 MT each for later marks.

Item Cost: 1 MT per gun on the parent ship; limited to ship with 5 *short* guns or larger with the exception that it may be mounted on a TA-211 Mark II or III Hyggyns Mining Ship (p.175). Must be on a ship with warp drive, which excludes the TA-360 Solar System Defense Ship (p.221).

When inoperable: Counts as a TA as per Damage Table on p.133.

Narrative: The ship mounting the highest mark of Ambush Drive will be the fastest in an extended chase. See Extended Chase entry at the bottom of p.124.

These booster engines also enable a ship to burrow beneath the surface of a moon or the planet of value of a friendly colonized star or an uncolonized star, and lie in wait for prey to warp in. The act of burrowing takes place immediately after warp in and may not be done if enemy forces are present. A ship that leaves ambush cannot return to ambush until the following year. New construction at a production center star or standing ships at any star may begin ambush prior to warp in for that year.

The ship with ambush drive has the option of bursting from beneath the surface of the moon or planet and conducting a surprise attack. The ship always bursts forth from the outer surface of the planet or moon at legend speed and in a direction of its choosing.

A ship may leap from ambush the first battle board move or later during a battle because it has sensors to determine the nature of all forces and their dispositions on the battle board. Ships warping in will deploy with due caution and must proceed with their stated mission. A ship on ambush at a neutral or enemy-held star will have the option of requesting directions of arrival and the nature of the ships in an arriving fleet, which obviously reveals the presence of an ambush. An arriving fleet warned in this manner has the option of proceeding with its mission or of beginning retreat. The ship on ambush has the option of remaining on ambush or attacking.

If a ship known to be on ambush refuses demands to leave its lair, opposing forces will exchange information about the mark of Ambush Drive carried. If any non-ambush ship has an equal or higher mark of Ambush Drive, that ship can destroy the ship on ambush by firing 5 guns simultaneously at range 10 or less from the ship's planet or moon hideout.

A ship on ambush is *not* destroyed if it remains in its lair after enemy neutralization, colonization or buildup of that star. A ship cannot *enter* ambush mode at an enemy-held star.

The number of ships of any size that may be on ambush is as follows:

- 16 – Each planet of value, but not in a Dead Dwarf
- 4 – Big moon (4 squares on battle board)
- 1 – Each small moon (1 square on battle board)

TA-700a to 700z Hallucination Projector

Descriptive: The Hallucination Projector projects an imperfect mirror image of the parent ship. An enemy ship will know one of the “ships” is a hallucination of no substance, but cannot determine the real ship half the time. There are 26 marks.

Designation: hpa, hpb, hpc through hpx, hpy, hpz as in 5/Z.12hpy, 10/BB.85hpc or 8/P.6hpf|ad|rd|td, etc.

Prerequisite: None

Development Cost: 128 MT for the Mark I (hpa) and 32 MT each for later marks (hpb through hpz). Must be developed in sequence.

Item Cost: 16 MT Limited to warship with 8 guns or larger.

When inoperable: As per Damage Table on p.133.

Narrative: The hp projects an imperfect mirror image of the parent ship to range 0 on the battle board. Both “ships” will appear to be in the same battle board square, thus revealing the fact that one of the “ships” is a hallucination. The hallucination can warp in with the parent ship. The ship has the option of not using the hallucination. For a ship that is using its Hallucination Projector, an “hp” notation must be made beside the ship when it moves on the battle board. A similar notation must be made on the “Next Move” entry of the ship’s Battle Record (page 91).

A ship using the hp causes enemy gunfire and Homing Torpedoes to miss half the time:

Die roll: 1, 2, 3 = Miss 4, 5, 6 = Hit (proceed to Hits Table on p.133)

The Hallucination Projector is effective against gunfire, including TA-350 series of Plasma Gun Warship (p.218-219). Ineffective against all other weapons.

The hp nullifies the effectiveness of enemy hp’s at any range as long as the enemy hp is of an equal or lesser mark. The ability to penetrate an enemy hallucination is not transferable or transmittable to other ships.

Upgrading. An hp is upgraded for free to the latest mark by landing for 1 battle board turn on the planet of value of a friendly production-center star.

TAs 701 & 702 Marks I & II Anti-Hallucination Projector

Descriptive: The Marks I and II Anti-Hallucination Projector enable a ship to better penetrate a TA-700 series of Hallucination Projector’s hallucination.

Designation: Mark I: (hp) as in 5/Z.12(hp) 10/CA.85(hp), etc.

Mark II: (shp) as in 5/Z.12(shp) 10/CA.85(shp), etc.

Prerequisite: Mark I: TA-700a (Mark I) Hallucination Projector

Mark II: TA-701 Mark I Anti-Hallucination Projector

Development Cost: Mark I: 48 MT

Mark II: 96 MT. Must be developed in sequence.

Item Cost: 40 MT for either (hp) or (shp). Limited to ship with 8 guns or larger. The cost on any kind of fortress, which see, is much less; usually 8 or 4 MT each.

When inoperable: As per Damage Table on p.133.

Narrative: A ship using the (hp) or (shp) has an improved chance of identifying a hallucination so that its weaponry has a better chance of hitting the target. Use a 6-sided die:

Mark I: 1, 2 = weapons strike hallucination, 3, 4, 5, 6 = weapons hit real ship.

Mark II: 6 = weapons strike hallucination, 1, 2, 3, 4, 5 = weapons hit real ship.

The ability to penetrate an enemy hallucination is not transferrable or transmittable to other ships. The (hp) and (shp) on either friendly or enemy ships do *not* alter the poor accuracy of the Homing Torpedo, above and on p.257.

Upgrading. An (hp) is upgraded for free to the (shp) by landing for 1 battle board turn on the planet of value of a friendly production-center star.

TA-800 Mark I Sub-Warp Drive

Descriptive: Sub-Warp drive allows a ship to drop out and re-enter at will the desired battle board dimensional and temporal realities. This allows ships to approach an enemy to conduct a short-range attack.

Designation: *ij* (option-exclamation point) as in *ij5/Z.12*, *ij10/CS.85* or *ij8/S.6ad|rd|td|*****, etc.

Prerequisite: None.

Development Cost: 128 MT

Item Cost: 8 MT Limited to ship with 5 *short* guns or larger.

When inoperable: As per Damage Table on p.133. A ship cannot enter sub-warp if half or more of its engines are destroyed. A ship already in sub-warp that loses half or more of its engines is destroyed upon expiration of its maximum time allowed in sub-warp.

Narrative: The *ij* allows a ship to drop off the battle board for exactly 2 moves on the battle board. Both of the ship's moves in sub-warp are pre-plotted by the player. The ship may not travel through obstacles while in sub-warp. A ship in sub-warp is not visible to ships in normal space or those in sub-warp.

The ship reappears in normal space on the third move. The ship must then make 1 more move in normal space before it can return to sub-warp. This rule applies only to Marks I through VI of Sub-Warp Drive. The Mark VII and later require 4 moves in normal space.

A ship may not enter pre-warp the same move it exits sub-warp; it must wait 2 moves in normal space before doing so. Mark VII and later requires 4 moves.

A sub-warp equipped ship must warp onto the battle board in normal space and make its initial move in normal space. A ship leaving ambush (TA-600 series of Ambush Drives, p.306) must spend 2 moves in normal space before entering sub-warp. Mark VII and later requires 4 moves.

A ship (or Toss Torpedo) will always enter sub-warp at the start of a move and end sub-warp at the end of a move. Entering and departing sub-warp cannot be done mid-move. A ship (or Toss Torpedo) must return to normal space in an open square on the battle board, otherwise the returnee is destroyed. Whatever occupies that square is unharmed.

Weapons cannot be used while in Mark I sub-warp; the ship is at maximum defense. A ship that loses all its engines while in sub-warp is lost after consumption of its maximum allowed time in sub-warp.

A ship conducting a TA-16 Blockade, p.149, breaks the blockade if it uses sub-warp.

A ship in pre-warp cannot be interrupted by a ship or weapon in sub-warp. This rule applies to all 26 marks of sub-warp. Scientific advances, such as the TA-510 series of Negative Energy Torpedo, p.277, may offer a way to get at a ship in sub-warp. The TA-810 series of Anti-Sub-Warp Drives, p.312, provides a way to track a ship in sub-warp.

TA-801 Mark II Sub-Warp Drive

Descriptive: Same as TA-800 Mark I Sub-Warp Drive.

Designation: jj as in $\text{jj}5/\text{Z}.12$, $\text{jj}10/\text{CS}.85$ or $\text{jj}8/\text{S}.6\text{ad}|\text{rd}|\text{td}|****$, etc.

Prerequisite: TA-800 Mark I Sub-Warp Drive

Development Cost: 96 MT

Item Cost: 16 MT Limited to ship with 5 *short* guns or larger.

When inoperable: As per Damage Table on p.133. A ship cannot enter sub-warp if half or more of its engines are destroyed. A ship already in sub-warp that loses half or more of its engines is destroyed upon expiration of its maximum time allowed in sub-warp.

Narrative: The jj allows a ship to drop into sub-warp for exactly 4 moves on the battle board. All 4 moves in sub-warp must be pre-plotted by the player. Otherwise the Mark II is the same as the Mark I.

The Mark I may be upgraded to the Mark II by paying the full 16 MT cost of the Mark II. The Mark I is junked or discarded. The Mark II may be installed at any friendly production center star by landing on the planet of value for 1 battle board turn.

TA-802 Mark III Sub-Warp Drive

Descriptive: Same as TA-800 Mark I Sub-Warp Drive.

Designation: jjj as in $\text{jjj}5/\text{Z}.12$, $\text{jjj}10/\text{CS}.85$ or $\text{jjj}8/\text{S}.6\text{ad}|\text{rd}|\text{td}|****$, etc.

Prerequisite: TA-801 Mark II Sub-Warp Drive

Development Cost: 64 MT

Item Cost: 16 MT Limited to ship with 5 *short* guns or larger.

When inoperable: As per Damage Table on p.133. A ship cannot enter sub-warp if half or more of its engines are destroyed. A ship already in sub-warp that loses half or more of its engines is destroyed upon expiration of its maximum time allowed in sub-warp.

Narrative: Same as Marks I and II except that sub-warp *will* last 6 moves, including the entry move. The seventh move will be to re-enter normal space. All 6 moves in sub-warp must be pre-plotted by the player. A ship may return to sub-warp moves the turn after entering normal space.

The Mark II can be upgraded to the Mark III by landing the ship on the planet of value of any friendly production center star for 1 battle board move. The upgrade is free.

TA-803 Mark IV Sub-Warp Drive

Descriptive: Same as TA-800 Mark I Sub-Warp Drive.

Designation: jdj as in $\text{jdj}5/\text{Z}.12$, $\text{jdj}10/\text{CS}.85$ or $\text{jdj}8/\text{S}.6\text{ad}|\text{rd}|\text{td}|****$, etc.

Prerequisite: TA-802 Mark III Sub-Warp Drive

Development Cost: 64 MT

Item Cost: 16 MT Limited to ship with 5 *short* guns or larger.

When inoperable: As per Damage Table on p.133. A ship cannot enter sub-warp if half or more of its engines are destroyed. A ship already in sub-warp that loses half or more of its engines is destroyed upon expiration of its maximum time allowed in sub-warp.

Narrative: Same as the Mark III, except that sub-warp can last anywhere from 2 to 8 moves, including the entry move. The number of moves to be spent in sub-warp is the ship player's option. All moves must be pre-plotted.

The Mark III can be upgraded to the Mark IV by landing the ship on the planet of value of any friendly production center star for 1 battle board move. The upgrade is free.

TA-804 Mark V Sub-Warp Drive

Descriptive: Same as TA-800 Mark I Sub-Warp Drive.

Designation: je| as in je|5/Z.12, je|10/CS.85 or je|8/S.6ad|rd|td|****, etc.

Prerequisite: TA-803 Mark IV Sub-Warp Drive

Development Cost: 32 MT

Item Cost: 16 MT Limited to ship with 5 *short* guns or larger.

When inoperable: As per Damage Table on p.133. A ship cannot enter sub-warp if half or more of its engines are destroyed. A ship already in sub-warp that loses half or more of its engines is destroyed upon expiration of its maximum time allowed in sub-warp.

Narrative: The Mark V allows sub-warp to last from 2 to 8 moves. The moves in sub-warp are not pre-plotted; ship movement is plotted simultaneously with other ships, but those moves in sub-warp are concealed from the enemy. A big advantage is that ships in Mark V and later sub-warp can see the movements of ships in normal space. Other operational characteristics of the Mark V are the same as the Mark IV.

The Mark IV can be upgraded to the Mark V by landing the ship on the planet of value of any friendly production center star for 1 battle board move. The upgrade is free.

TA-805 Mark VI Sub-Warp Drive

Descriptive: Same as TA-800 Mark I Sub-Warp Drive, except that this mark of Sub-Warp Drive is costly and bulky, which forces the ship size limitation described below.

Designation: jf| as in jf|5/Z.12, jf|10/CA.85 or jf|8/S.6ad|rd|td|****, etc.

Prerequisite: TA-804 Mark V Sub-Warp Drive

Development Cost: 128 MT

Item Cost: 2 MT per gun Limited to ship with 8 guns or larger and cannot be combined with TA-330 Raider (p.213).

When inoperable: As per Damage Table on p.133. A ship cannot enter sub-warp if half or more of its engines are destroyed. A ship already in sub-warp that loses half or more of its engines is destroyed upon expiration of its maximum time allowed in sub-warp.

Narrative: The Mark VI allows sub-warp to last from 2 to 12 moves. Additionally, a ship in Mark VI sub-warp may use any weapons to attack a ship in Marks I through V sub-warp. Since the ship being attacked can only use full defense, the obvious tactic for the victim will be to depart sub-warp immediately so battle can be fought in normal space. Opposing ships both using the Mark VI will fight normally. A ship in Mark VI sub-warp cannot attack a ship in normal space.

A ship that mounts the Mark VI jf| or later Sub-Warp Drive is able to observe the movements of all other ships with an equal or lesser mark of sub-warp while they are in sub-warp. Range is unlimited on the battle board.

The Mark V may be upgraded to the Mark VI by paying the full 2 MT per gun cost of the Mark VI. The Mark V can be moved to another ship, junked or discarded. The Mark VI may be installed at any friendly production center star by landing on the planet of value for 1 battle board turn.

TA-806g-806z Marks VII-XXVI Advanced Sub-Warp Drives

Descriptive: Later marks of Sub-Warp Drives are functionally similar to TA-605 Mark VI Sub-Warp Drive, but with 1 important enhancement. There are 20 marks, starting with the Mark VII, which is identified as jgi.

Designation: jgi through jzi as in jk5/Z.12, jx10/CS.85 or jm8/S.6ad|rd|td|****, etc.

Prerequisite: TA-805 Mark VI Sub-Warp Drive. Must be developed in sequence starting with TA-806g.

Development Cost: 16 MT for the Mark VII (jgi) and 8 MT each for later marks (jhj through jzi). Must be developed in order.

Item Cost: 2 MT per gun Limited to ship with 8 guns or larger and cannot be combined with TA-330 Raider (p.213).

When inoperable: As per Damage Table on p.133. A ship cannot enter sub-warp if half or more of its engines are destroyed. A ship already in sub-warp that loses half or more of its engines is destroyed upon expiration of its maximum time allowed in sub-warp.

Narrative: The Mark VII jgi allows sub-warp to last from 2 to 16 moves. Additionally, a ship in Mark VII jgi or later sub-warp may use any weapons to attack a ship using an earlier mark of sub-warp. The ship with an earlier mark can only use full defense, forcing the victim to depart sub-warp immediately so battle can be fought in normal space. Ships using equal marks (Marks VI and later) of sub-warp can attack each other normally.

A ship using any mark of sub-warp cannot attack a ship in normal space nor can a ship in normal space attack a ship using any mark of sub-warp. A ship and its weapons operating in sub-warp cannot affect a ship in pre-warp. This rule applies to all 26 marks of sub-warp. Scientific advances, such as the TA-510 series of Negative Energy Torpedo, p.277, may offer a way to get at a ship in sub-warp. The TA-810 series of Anti-Sub-Warp Drives, p.312, provides a way to track a ship in sub-warp.

A ship that mounts the Mark VII jgi through Mark XII jl Sub-Warp Drive is able to observe the movements of all other ships with an equal or lesser mark of sub-warp while they are in sub-warp. Range is unlimited on the battle board.

A ship with Mark XIII jm or later Sub-Warp Drive is able to track the movements of a ship using Mark XIII jm or later Sub-Warp Drive. A lesser mark tracks a greater mark!

The ship must appear in normal space for 4 moves before it can return to either pre-warp or sub-warp. A ship leaving ambush (TA-600 series of Ambush Drives, p.306) must spend 4 moves in normal space before entering a Mark VII or later sub-warp.

The Mark VI may be upgraded to the Mark VII and later by paying the full 2 MT per gun cost of the later mark. The Mark VI can be moved to another ship, junked or discarded. The Mark VII and later may be installed at any friendly production center star by landing on the planet of value for 1 battle board turn.

TA-810 Mark I Anti-Sub-Warp Drive

Descriptive: The Mark I Anti-Sub-Warp Drive enables a ship to track the movements of a ship traveling in sub-warp using Marks I through VI Sub-Warp Drive.

Designation: (i) as in 5/Z.12(i) 10/CS.85(i) or 8/S.6ad|rd|td|(i)|****, etc.

Prerequisite: TA-802 Mark I Sub-Warp Drive

Development Cost: 64 MT

Item Cost: 8 MT Limited to ship with 5 *short* guns or larger.

When inoperable: As per damage chart on p.133. Ineffective during extended chase.

Narrative: A ship using the (i) must be informed of the movements of a ship using TA-800 - 805 Marks I through VI Sub-Warp Drive. Those movements are made apparent to all friendly ships at the same time as ships move in normal space. The (i) does not give a ship the capability of attacking a ship in sub-warp. All it can do is watch.

TA-811 Mark II Anti-Sub-Warp Drive

Descriptive: The Mark II Anti-Sub-Warp Drive enables a ship to track the movements of a ship traveling in sub-warp using Marks I through XII Sub-Warp Drive.

Designation: (ii) as in 5/Z.12(ii) 10/CS.85(ii) or 8/S.6ad|rd|td|(ii)|****, etc.

Prerequisite: TA-810 Mark I Anti-Sub-Warp Drive

Development Cost: 32 MT

Item Cost: 8 MT Limited to ship with 5 *short* guns or larger.

When inoperable: As per damage chart on p.133. Ineffective during extended chase.

Narrative: A ship using the (ii) must be informed of the movements of a ship using TA-800 - 806l Marks I through XII Sub-Warp Drive. Otherwise same as the Mark I.

The Mark I may be upgraded to the Mark II by paying the full cost of the Mark II. There is no automatic upgrading of an existing Mark I after the Mark II has been developed. A ship with a Mark I must warp into and out of a friendly production center star, after which the Mark I is considered upgraded at the full cost of 8 MT. An older mark may be junked.

TAs 812 and 813 Marks III and IV Anti-Sub-Warp Drive

Descriptive: The Mark III Anti-Sub-Warp Drive enables a ship to track the movements of a ship traveling in sub-warp using Marks I through XVIII Sub-Warp Drive. The Mark IV works against all marks of Sub-Warp Drive.

Designation: (iii) or (iiii) as in 5/Z.11(iii) 10/CA.86(iiii) or 8/S.16ad|rd|(iii)|****, etc.

Prerequisite: TA-811 for the Mark III and TA-812 for the Mark IV.

Development Cost: 16 MT for each mark. Must be developed in sequence.

Item Cost: 8 MT Limited to ship with 7 guns or larger.

When inoperable: As per damage chart on p.133. Ineffective during extended chase.

Narrative: A ship using the (iii) must be informed of the movements of a ship using TA-800 - 806m Marks I through XVIII Sub-Warp Drive. Otherwise same as the Marks I and II. The Mark IV (iiii) works against all marks of Sub-Warp Drive.

The Mark II may be upgraded to the Mark III by paying the full cost of the Mark III. There is no automatic upgrading of an existing Mark II after the Mark III has been developed. A ship with a Mark II must warp into and out of a friendly production center star, after which the Mark II is considered upgraded at the full cost of 8 MT. No stopping time is required. The older mark may be junked.

TA-820 Rein-M'tuh Telepath

Descriptive: The daughter of Grey Booley has powerful skills in levitation, psychokinesis, precognition, telepathy and a form of psychophysical parallelism involving teleportation by telekinesis that allows her to project mind and body to a distant location. The 800-year-old Lanakuli Lorali and 4 of her 404 ovoviviparous offspring have (or had) this ability, which is used to predict enemy ship movements on the battle board. The mercifully unpublished novel "Dreadnought Princess" describes her adventures as a member of the Rein-M'tuh sub-caste of low royalty on Pentaphrogonauticus, also known as Vivipara. Often mentioned but never described are her prodigiously wanton and marvelously successful reproductive predilections, which have produced just 4 Telepaths, all 4 of whom were stillhatched, much to the disappointment of Roa Can-Ek Barking Skull, the war king of Zyga, and his duplicitous chamberlain Derfflinger von Hindenburg-Lutzow. They were perjoratively called "Barky" and "Derffy" by those who knew them.

Designation: ® or (option r in a text font) as in 8/Z.32®, 6/DN.53ad|rd|hd|md|® or 8/CA.63sd|td³|ti³|®, etc.

Prerequisite: Only 1 Rein-M'tuh Telepath per empire can be active at a time

Development Cost: 128 MT. Pay full cost per Rein-M'tuh Telepath developed.

Item Cost: 4 MT. Must be on a 9-gun warship or larger. The ® does not count against the TA limitation imposed on ships (p.142).

When inoperable: Whenever the host ship takes a bridge hit or is destroyed (p.133).

Narrative: The Rein-M'tuh Telepath allows a ship to predict the next move of an enemy ship traveling in normal space on the battle board. The ® can function *from* sub-warp (TAs 800 to 806z) or *from* ambush (TAs 600a to 600zz), but she is ineffective in normal space against ships in sub-warp or on ambush. She cannot predict when a ship will leave sub-warp.

The player using the ® announces the presence of the telepath after an opponent makes his first move on the battle board. An opponent must move all his units on the battle board before the ® player moves his ships, even if it is the first battle board move.

The Rein-M'tuh Telepath has unlimited range on the battle board, but not from a transit point. She provides next move information about all enemy ships to all friendly ships on the battle board.

The only countermeasure to the Rein-M'tuh Telepath is to deploy your own ®. Opposing telepaths cause mutual mental meltdown, which is fatal to both. The fatalities return all ship movement to normal. The fatalities can be prevented by both sides agreeing that their Rein-M'tuh Telepath is indisposed and has retired for the day. Such an agreement to retire cannot be broken by either telepath. If only 1 ® retires, the other will retain normal effectiveness. A retired ® stays retired to her host ship for the rest of a battle.

A powerful characteristic of a Rein-M'tuh Telepath is the ability to project mind and body instantly to a distant location. The ® may leap from ship to ship (9-gunner or larger) of a fleet involved in battle. Such movement is simultaneous with ship movement. The ® may also leap to another friendly fleet that has a 9-gun or larger warship anywhere on the star chart, but only after a Cycom ends and before another begins. The ® can go to a home star.

The telepath operates normally on the battle board from a ship that is in pre-warp. The telepath can also move to or from another ship on the battle board that is in pre-warp or even if both are in pre-warp.

It should be noted that the movement limitations of the ® are caused by the creature's hysterical nature. The chaos of battle prevents her from entering the calm state of meditation that is required for telekinetic teleportation over interstellar distances. The ship size limitations are caused by her haughty demeanor that prevents her from languishing in the inadequate commoner's quarters that are found on warships having fewer than 9 guns.

TA-830 Mark I Weapons Sniffer

Descriptive: Sniffs out the TA carried by an enemy ship.

Designation: ws as in 8/CA.22ad|rd|td|***|ws

Prerequisite: None

Development Cost: 48 MT

Item Cost: 10% of base 1 cost of warship. Can be on any warship of 5 or more guns.

When inoperable: When ship is hulked or destroyed. Repaired when hulked ship is repaired.

Narrative: The Weapons Sniffer smells out which TAs are mounted on an enemy ship to any range on the battle board. The ws *does not* determine mark of the TA. The ws does not work against ships on ambush (TAs 600a through 600zz) or against ships in sub-warp that are using a higher mark of sub-warp (TAs 800 through 806z) than is carried and being used by the ws-equipped ship.

TA-831 Mark II Weapons Sniffer

Descriptive: Sniffs out the TAs carried by an enemy ship.

Designation: ws2 as in 8/CA.22ad|rd|td|***|ws2

Prerequisite: TA-830 Mark I Weapons Sniffer

Development Cost: 48 MT

Item Cost: 10% of base 1 cost of warship. Can be on any warship of 5 or more guns.

When inoperable: When ship is hulked or destroyed. Repaired when hulked ship is repaired.

Narrative: The Weapons Sniffer smells out which TAs are mounted on an enemy ship to any range on the battle board. The ws *does* determine mark of the TA. Otherwise same as the Mark I.

TA-839 Weapons Cloaking Device

Descriptive: Conceals TAs carried on a ship from all marks of the Weapons Sniffer.

Designation: (ws) as in 8/CA.22ad|rd|td|***|(ws)

Prerequisite: TA-831 Mark II Weapons Sniffer

Development Cost: 48 MT

Item Cost: 10% of base 1 cost of warship. Can be on any warship of 5 or more guns.

When inoperable: When ship is hulked or destroyed. Repaired when hulked ship is repaired.

Narrative: The Weapons Cloaking Device protects a ship from TAs 830-831 Marks I and II Weapons Sniffer.

TA-840 Mark I Twinkle Shroud

TA-841 Mark II Twinkle Shroud

Descriptive: The Twinkle Shroud allows a ship to vanish from view in a veritable twinkling only to untwinkle itself a few battle board moves later.

Designation: ts (Mark I) or tss (Mark II) plus a superscript numeric listing the number carried, as in 7/Z.13ts¹⁴, 10/CS.51tss⁵, h|8//CG.64ad/rd/hd/md/gd/tss¹¹, etc.

Prerequisite: TAs for ships on which the Twinkle Shroud is mounted.

Development Cost: Mark I 96 MT
Mark II 16 MT | Must develop in sequence

Item Cost: 2 MT per gun for each ts or 3 MT per gun for each tss. The TA must be reinstalled at a production center star after use in a battle. Must be on a warship having 8 to 40 guns, p.131, plus any of the following warships:

- TA-330 Raider of any size, p.213
- TA-358 Scout Galleon, p.220
- TA-364 Torpedo Cruiser (8 ts or tss), p.222
- Torpedo Dreadnought (DT), p.474
- Moon Cruiser (CM), p.131
- Light Cruiser (CL), p.131
- Scout Cruiser (CS), p.131

When inoperable: When used up or otherwise destroyed as a single TA, p.133. Repaired at usual cost, p.131, or when used even once replaced at full cost.

Narrative: The Mark I Twinkle Shroud allows a ship to vanish from view on the battle board for 1-5 moves. The Mark II allows the ship to vanish either once or twice for 1-5 moves. There is a 1-move delay between Mark II shroudings during which the ship regains its full weapons/defense capabilities. The shrouded ship can be seen to any range only by a ship that carries an equal or higher mark of Twinkle Shroud. An attacker must be using his own Twinkle Shroud in order to see (but not attack) a fleeing Twinkle Shroud ship. A ship using a Twinkle Shroud cannot use weapons while shrouded, but does use deflectors.

The ship using the Twinkle Shroud must record all planned moves in advance and then reveal those moves to an opponent after departing shrouded status. A shrouded ship will be destroyed if it crashes into a celestial hazard.

The Twinkle Shrouds are consumable modules. The ts or tss TA on the ship is destroyed upon completion of a battle in which it was used. The Mark II is lost after a battle even if it was used just once.

A ship that unshrouds itself must spend 1 or more turns unshrouded before it can enter pre-warp or sub-warp or re-use the Mark II Twinkle Shroud. A shrouded ship cannot directly enter TA-800 series of Sub-Warp nor can a ship in sub-warp or pre-warp become shrouded.

A hit by a TA-510 series of Negative Energy Torpedo, p.277, temporarily nullifies the effect of a Twinkle Shroud. A shrouded ship *will* explode a TA-570 series of Mine, p.301, which is visible on the battle board. TA-572 MineTorp, p.303, will see a shrouded ship as *friendly* and *not* explode! TA-820 Rein-M'tuh Telepath is effective against the Twinkle Shroud.

Use of a Twinkle Shroud by a ship using TA-16 Blockade, p.149, ends a blockade. TA-295 Stores Replenishment Ship, p.204, cannot install/resupply Twinkle Shrouds.

Chapter 17



Warp Gates



TA-900 Mark I Warp Gate

Descriptive: The Mark I Warp Gate allows a ship to move any distance from a home star to a Major Base of Operations or SBO. Scientists combine the quantum jump principle, which allows atom-sized objects to move around in jerky leaps without going in between. This is known to be a peculiar manifestation of the multi-universe theory that reveals there is no size relationship between 1 universe and another.

Designation: WG

Prerequisite: TA-1260 Major Base of Operations, p.473, and the construction of 1 or more such MBOs. Excludes Rogue Planet.

Development Cost: 256 MT

Item Cost: 400 MT (cannot be junked, sold or relocated. Can be abandoned)

When inoperable: A Warp Gate is lost when its MBO is conquered or disbanded. Also, the WG is lost if its 2-fleet supply of warp juice is ended.

Narrative: The Mark I Warp Gate provides rapid movement between a Major Base of Operations or an SBO and an empire's home star. Cannot be set up between MBOs; 1 end must always be at a home star. Only 1 WG per MBO/SBO is allowed, but any number can be at a home star. Rogue Planets cannot host a Warp Gate. A WG works to travel in either direction. The operational cost of the WG is a continuous supply of warp juice for 2 fleets that must be supplied without interruption.

The Mark I Warp Gate is able to move a ship of any size any distance between MBOs or SBOs. A transported ship does not have to have warp drive! Capacity is 1 ship per Cycom. The ship must depart an MBO or home star on year 1 of a Cycom and will arrive on year 4. A ship using a WG does not consume warp juice; only the WG itself requires warp juice. Small ships carried by a parent ship all count as 1 ship.

A WG can be paid for, set up and utilized all in the same Cycom.

A Warp Gate functions to the end of a Cycom, even if 1 end of the Warp Gate is lost due to enemy takeover of the host MBO or SBO. A WG can never be moved, sold or junked.

Departure and arrival will always be from a point that is range 5 south of the planet of value. Arrival at the WG destination is simultaneous with the year 4 warp in arrival of other fleets warping in.

Departure is instant from the departure point; there is no "warp out" procedure. A ship may enter a WG at any speed from any direction. Exit from a WG terminus is always at leg-end speed in any direction. Departure from a WG's exit point is done the first battle board turn *after* the arrival turn. A ship/fleet that has just arrived in a WG cannot be attacked on its arrival turn. In fact, it cannot be seen by an enemy.

The only ships that can safely use a WG are those belonging to the empire that constructed the WG. Hostile ships and ships belonging to allies will be destroyed if they enter the WG entry/departure point. Weapons fired into or through a WG entry/departure point are lost without effect.

A WG must continuously record its existence on the Warp Ripple Report each Cycom. A ship or fleet using the WG does not make a warp ripple report. Example:

WG B-87 

A Mark I Warp Gate can be upgraded by paying the cost difference and supplying the extra warp juice.

TA-901 Mark II Warp Gate

Descriptive: Same as the Mark I but with added capabilities.

Designation: WG²

Prerequisite: TA-900 Mark I Warp Gate

Development Cost: 128 MT

Item Cost: 500 MT (cannot be junked or sold)

When inoperable: Same as Mark I

Narrative: Same as the Mark I, except that a single batch of 2 ships can be transported *simultaneously* per Cycom. The operational cost of the WG is a continuous supply of warp juice for 4 fleets that must be supplied without interruption.

A Mark I Warp Gate is instantly upgraded to a Mark II by paying the cost difference and supplying the extra warp juice.

TA-902 Mark III Warp Gate

Descriptive: Same as the Mark I but with added capabilities.

Designation: WG³

Prerequisite: TA-901 Mark II Warp Gate

Development Cost: 128 MT

Item Cost: 600 MT (cannot be junked or sold)

When inoperable: Same as Mark I

Narrative: Same as the Mark I, except that a single batch of 4 ships can be transported *simultaneously* per Cycom. The operational cost of the WG is a continuous supply of warp juice for 8 fleets that must be supplied without interruption.

A Mark II Warp Gate is instantly upgraded to a Mark III by paying the cost difference and supplying the extra warp juice.

TA-903 Mark IV Warp Gate

Descriptive: Same as the Mark I but with added capabilities.

Designation: WG⁴

Prerequisite: TA-902 Mark III Warp Gate

Development Cost: 128 MT

Item Cost: 700 MT (cannot be junked or sold)

When inoperable: Same as Mark I

Narrative: Same as the Mark I, except that a single batch of 8 ships can be transported *simultaneously* per Cycom. The operational cost of the WG is a continuous supply of warp juice for 16 fleets (same as the Mark III) that must be supplied without interruption.

A Mark III Warp Gate is instantly upgraded to a Mark IV by paying the cost difference and supplying the extra warp juice.

TA-904 Mark V Warp Gate

Descriptive: Same as the Mark I but with added capabilities.

Designation: WG⁵

Prerequisite: TA-903 Mark IV Warp Gate

Development Cost: 128 MT

Item Cost: 800 MT (cannot be junked or sold)

When inoperable: Same as Mark I

Narrative: Same as the Mark I, except that any number of ships can be transported *simultaneously* per Cycom. The operational cost of the WG is a continuous supply of warp juice for 16 fleets (same as the Mark IV) that must be supplied without interruption.

A Mark IV Warp Gate is instantly upgraded to a Mark V by paying the cost difference.

TA-905 Mark VI Warp Gate

Descriptive: Same as the Mark I but with added capabilities.

Designation: WG⁶

Prerequisite: TA-904 Mark V Warp Gate

Development Cost: 128 MT

Item Cost: 900 MT (cannot be junked or sold)

When inoperable: Same as Mark I

Narrative: Same as the Mark V, except that the operational cost of the WG is *reduced* to a continuous supply of warp juice for 8 fleets that must be supplied without interruption.

A Mark V Warp Gate is instantly upgraded to a Mark VI by paying the cost difference

TA-906 Mark VII Warp Gate

Descriptive: Same as the Mark I but with added capabilities.

Designation: WG⁷

Prerequisite: TA-905 Mark VI Warp Gate

Development Cost: 128 MT

Item Cost: 1000 MT (cannot be junked or sold)

When inoperable: Same as Mark I

Narrative: Same as the Mark VI, except that the operational cost of the WG is *reduced* to a continuous supply of warp juice for 4 fleets that must be supplied without interruption.

A Mark VI Warp Gate is instantly upgraded to a Mark VII by paying the cost difference.

TA-907 Mark VIII Warp Gate

Descriptive: Same as the Mark I but with added capabilities.

Designation: WG⁸

Prerequisite: TA-906 Mark VII Warp Gate

Development Cost: 128 MT

Item Cost: 1200 MT (cannot be junked or sold)

When inoperable: Same as Mark I

Narrative: Same as the Mark VII, except that arrival time is the year following the departure year. Operational cost of the WG remains a continuous supply of warp juice for 4 fleets that must be supplied without interruption.

A Mark VII Warp Gate is instantly upgraded to a Mark VIII by paying the cost difference.

Chapter 18



Alternate Map



Cosmology

Blue Supergiants: 8
 Red Supergiants: 8
 Blue Giants: 8
 Red Giants: 8
 Main Sequence: 360
 T Tauri Stars: Common adjacent to or in
 gas clouds
 NGC-700,000: 0 (not with this map)

Protostars: Very common adjacent to or in gas clouds
 White Dwarfs: Common
 Red Dwarfs: Common
 Dead Dwarfs: 26
 Pulsars: 9
 Neutron Stars: 6
 Magnetars: 6
 Multiple Stars: 82, but far fewer than in a real galaxy

Blue Supergiant



Blue Giant



Red Supergiant



Red Giant



Main Sequence, Yellow



T Tauri Stars



Protostars



White Dwarf



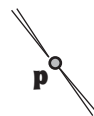
Red Dwarf



Dead Dwarf



Pulsar



Neutron Star



Magnetar



Gallery of Multiple Stars



Sextuple



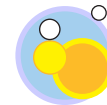
Quadruple



Trinary



Binary



Pen-



Quadruple



Trinary



Binary



Trinary



Binary

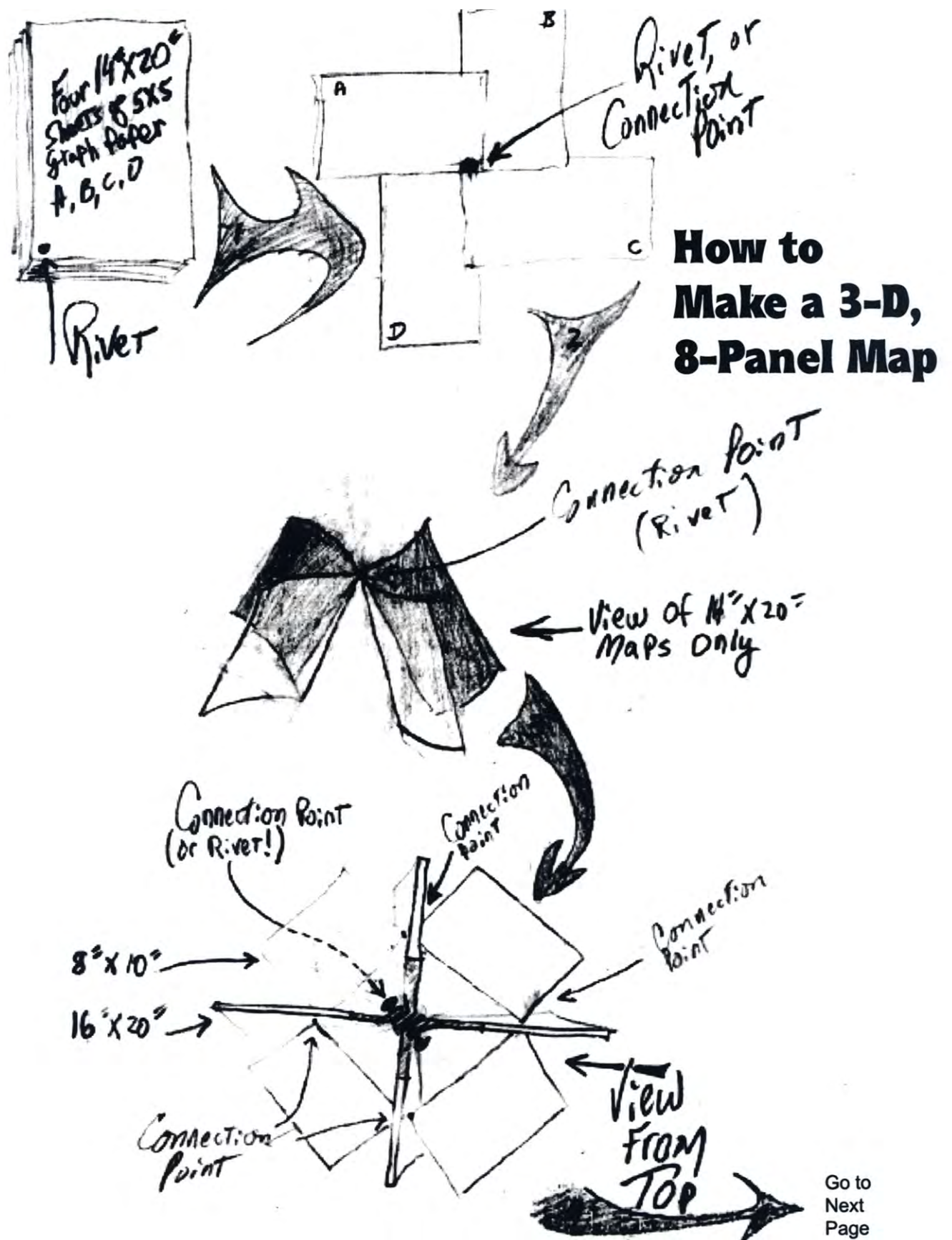


Binary

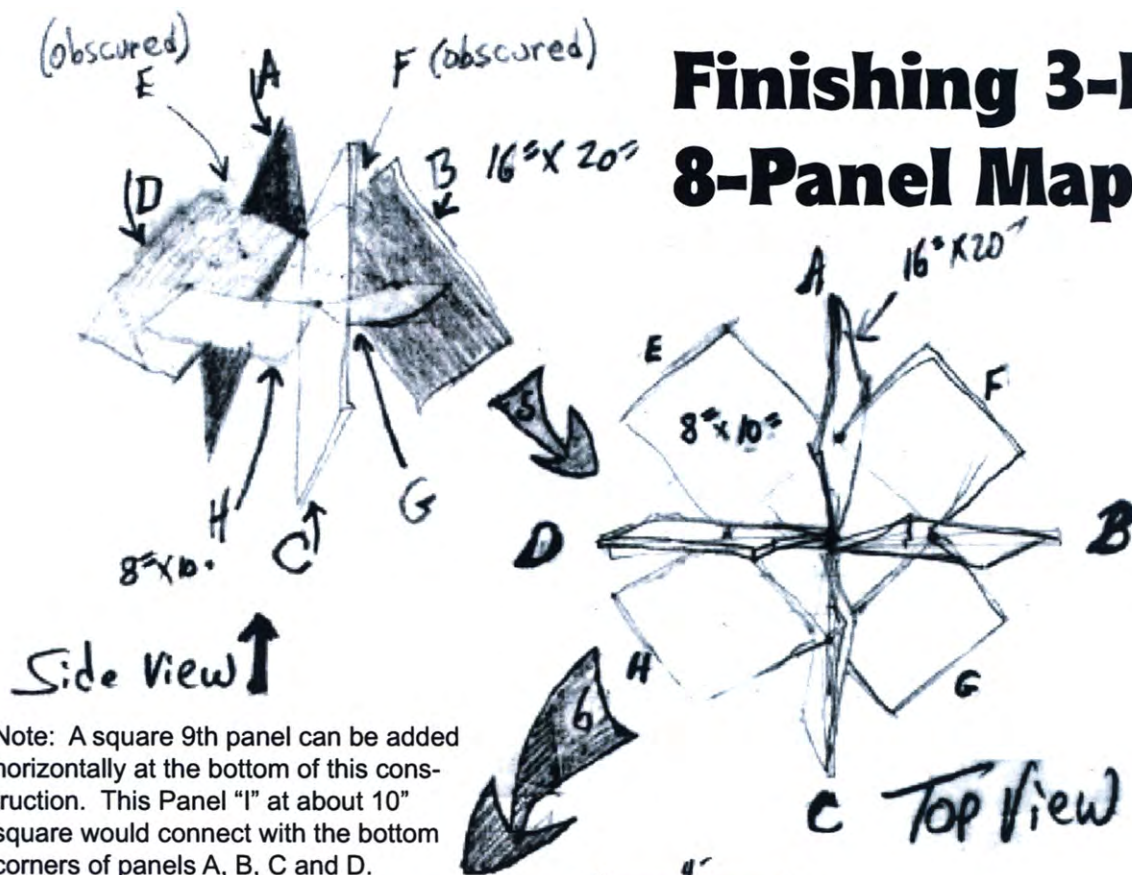


Exploding
Star

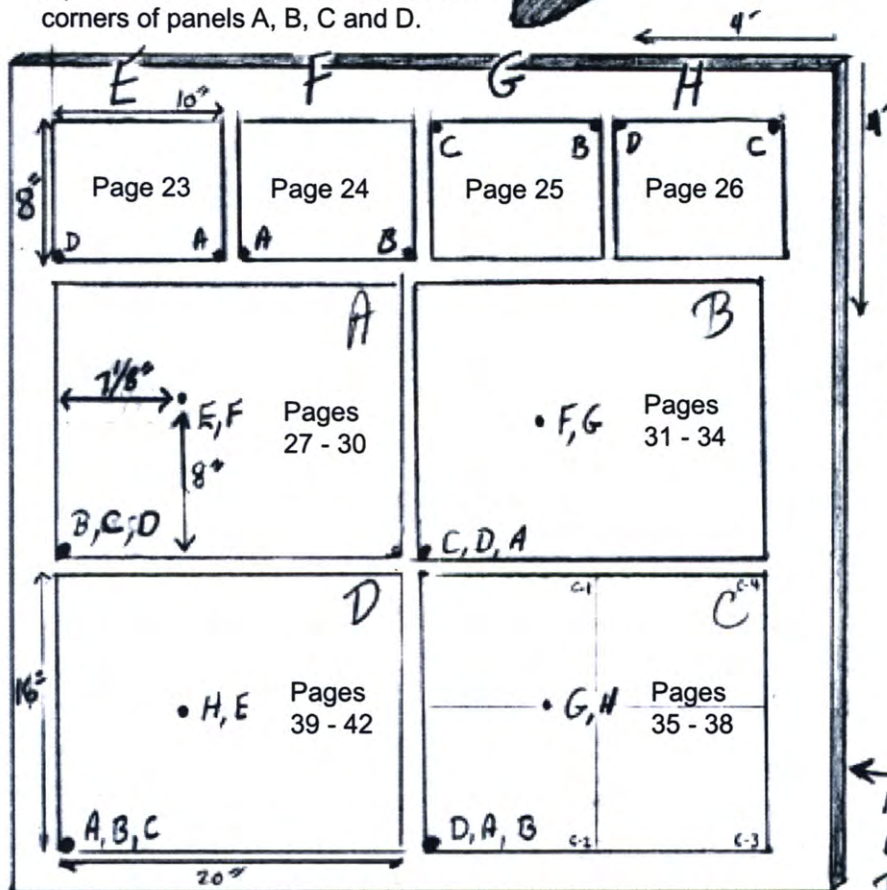
Stars are located and identified
 by their map coordinates; e.g.,
 E-18H (map section followed
 by coordinates).



Finishing 3-D, 8-Panel Map



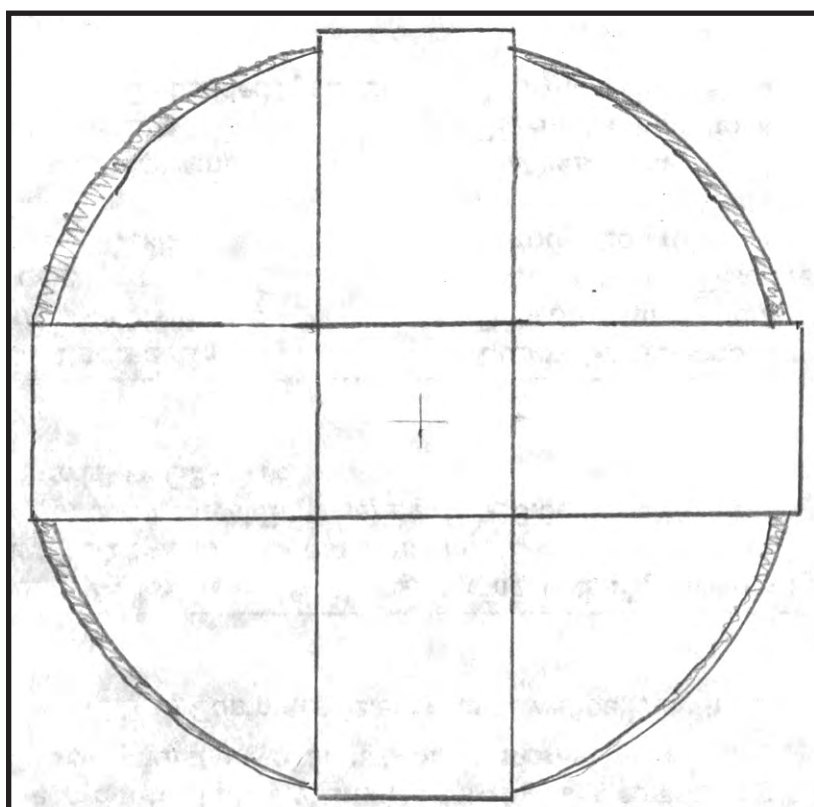
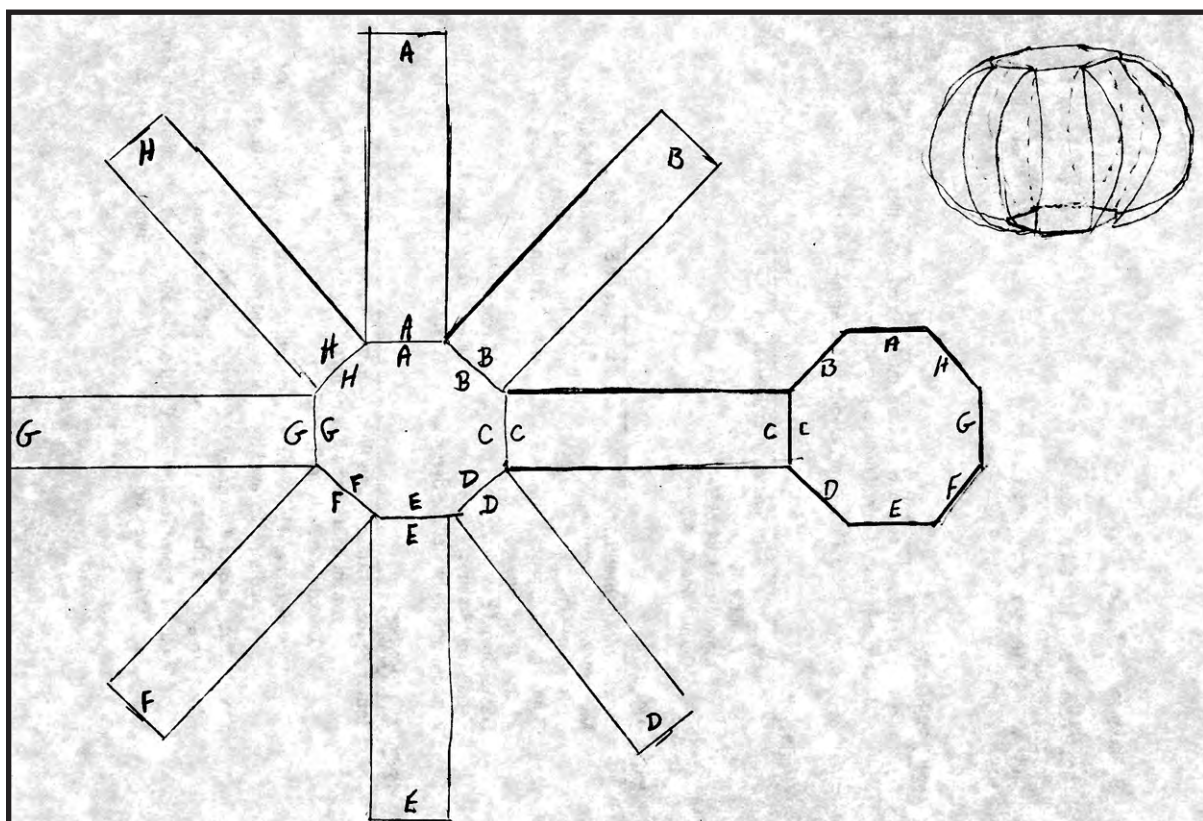
Note: A square 9th panel can be added horizontally at the bottom of this construction. This Panel "I" at about 10" square would connect with the bottom corners of panels A, B, C and D.



Drawing Shows
Where Connection
Points Lead.
Player Has Choice
Of Destination.

Mount 8 Maps on
4' x 4' Chunk of
Bulletin-Board Material

Another Way to Configure a Map



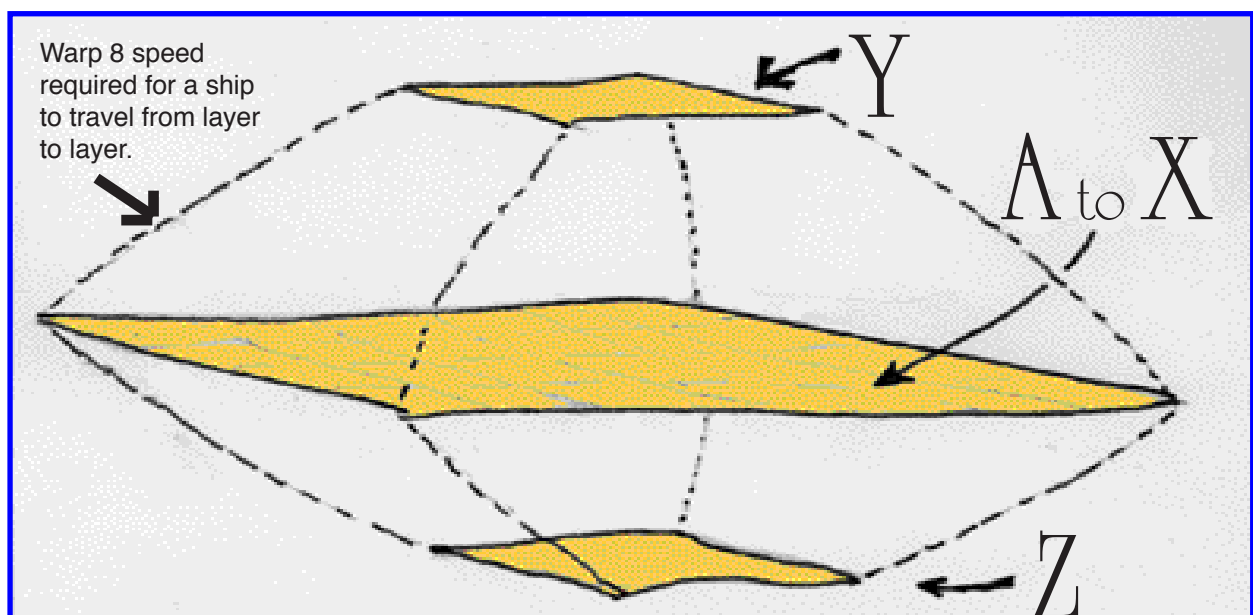
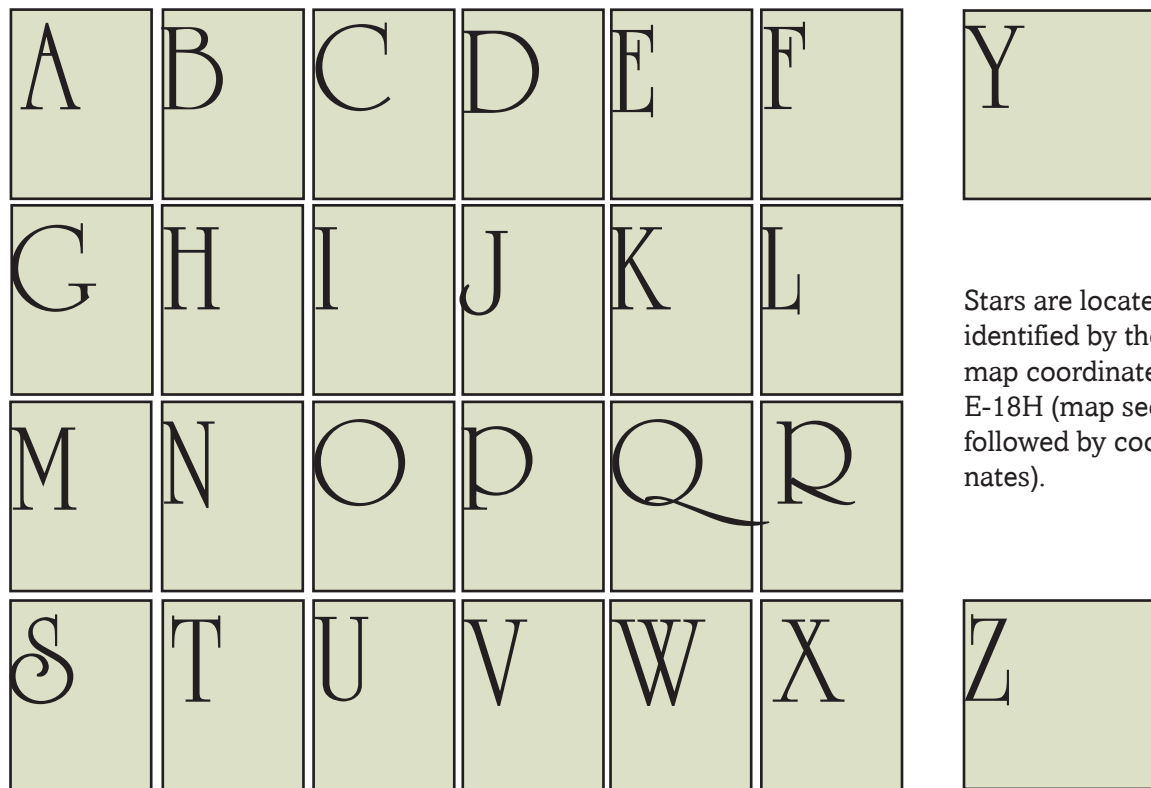
The drawing above depicts a 10-panel map assembled into a pumpkin shape. The 8 long panels, A, B, C, D, E, F, G, H connect with the 2 flat octagons, as shown at upper right. The net effect is that of a globe.

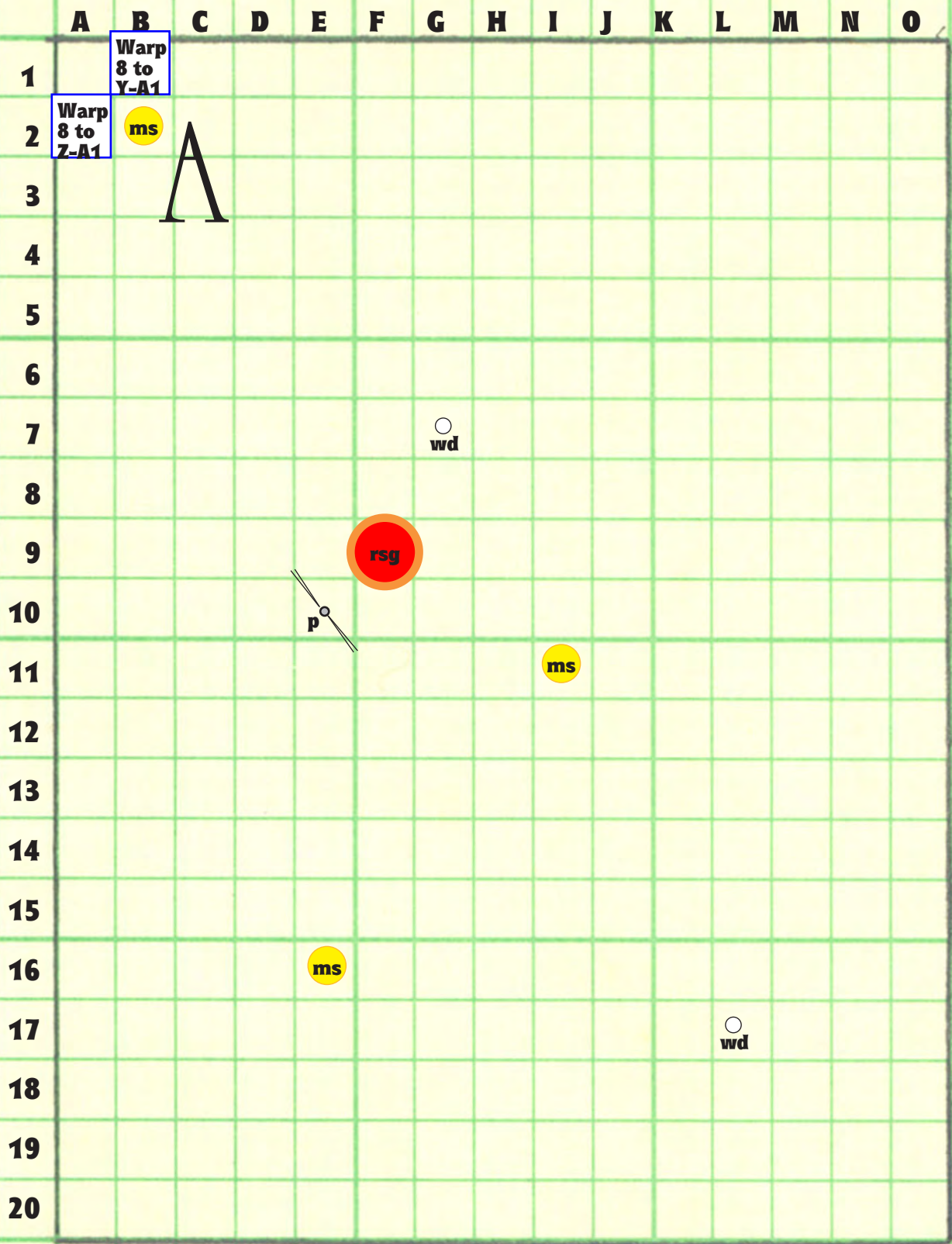
The drawing at left depicts a 3-dimensional construct that consists of 3 intersecting rings that are positioned 90° in relation to each other. The frame around a gyroscope uses the same geometry.

The Star Chart

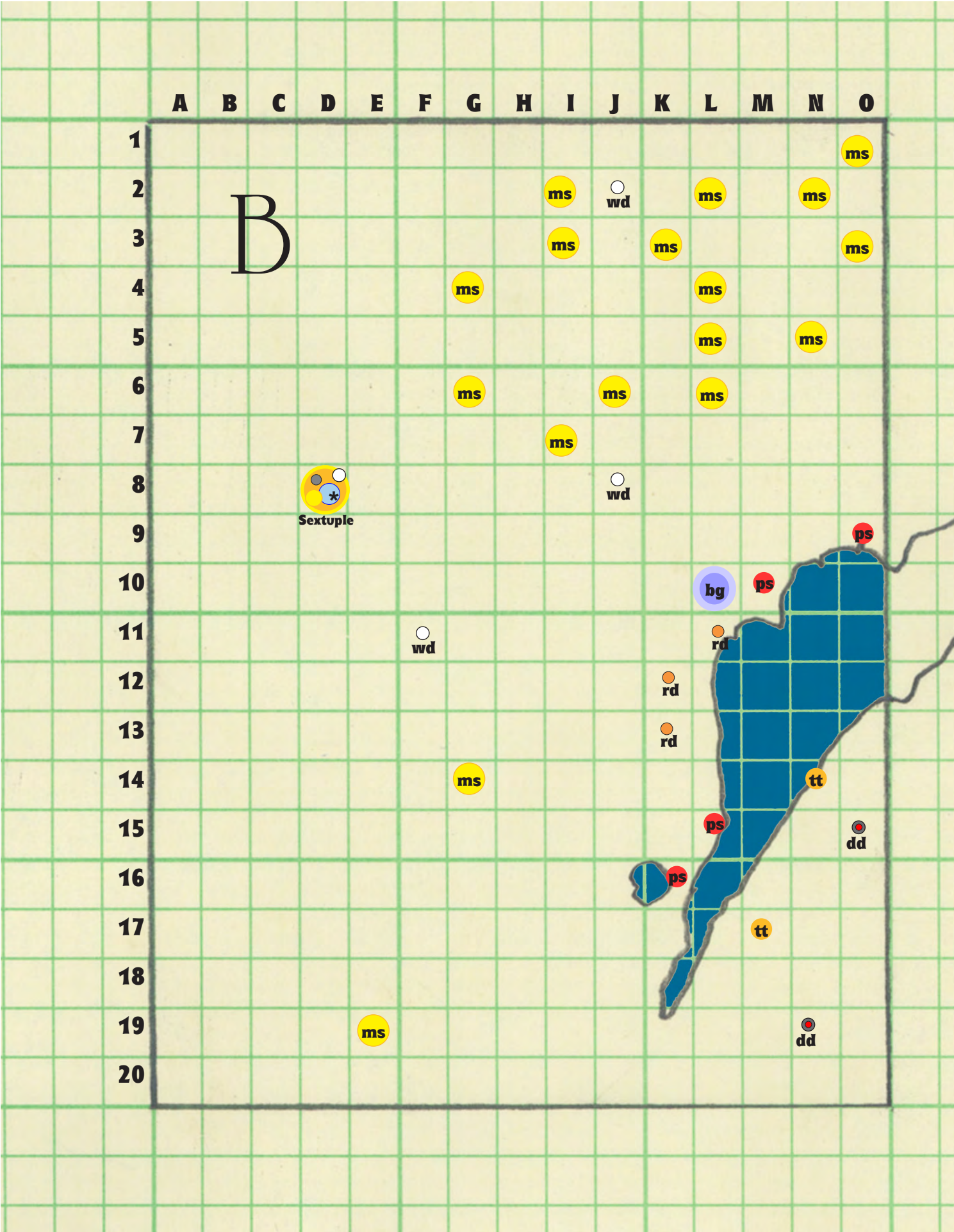
The following pages are maps for a game of as many as 6 players. Two players will start on the southern half of the main map and 2 on the north for a total of 4 players. Players 5 and 6 would be placed on maps Y and Z. Two players will start on the south half of the map. Home star locations are N-10-H, E-18-H, O-9-B, K-14-F, Y-6-Q and Z-6-Q. Try to limit a game to no more than 5 players because player 6 would be too crowded with player 5.

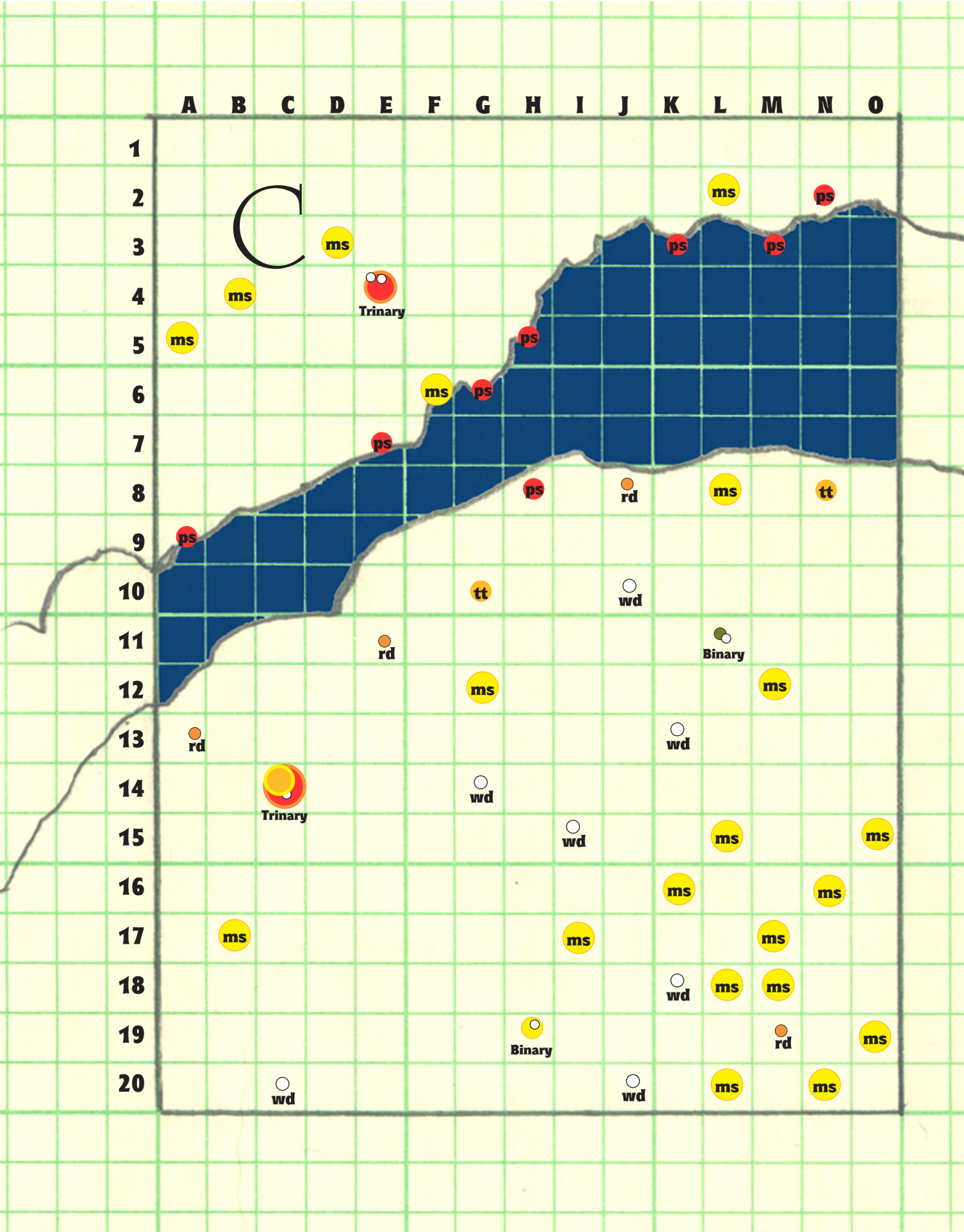
Arrange the 26 map sections as depicted below pinned to a sheet of soft Masonite®:

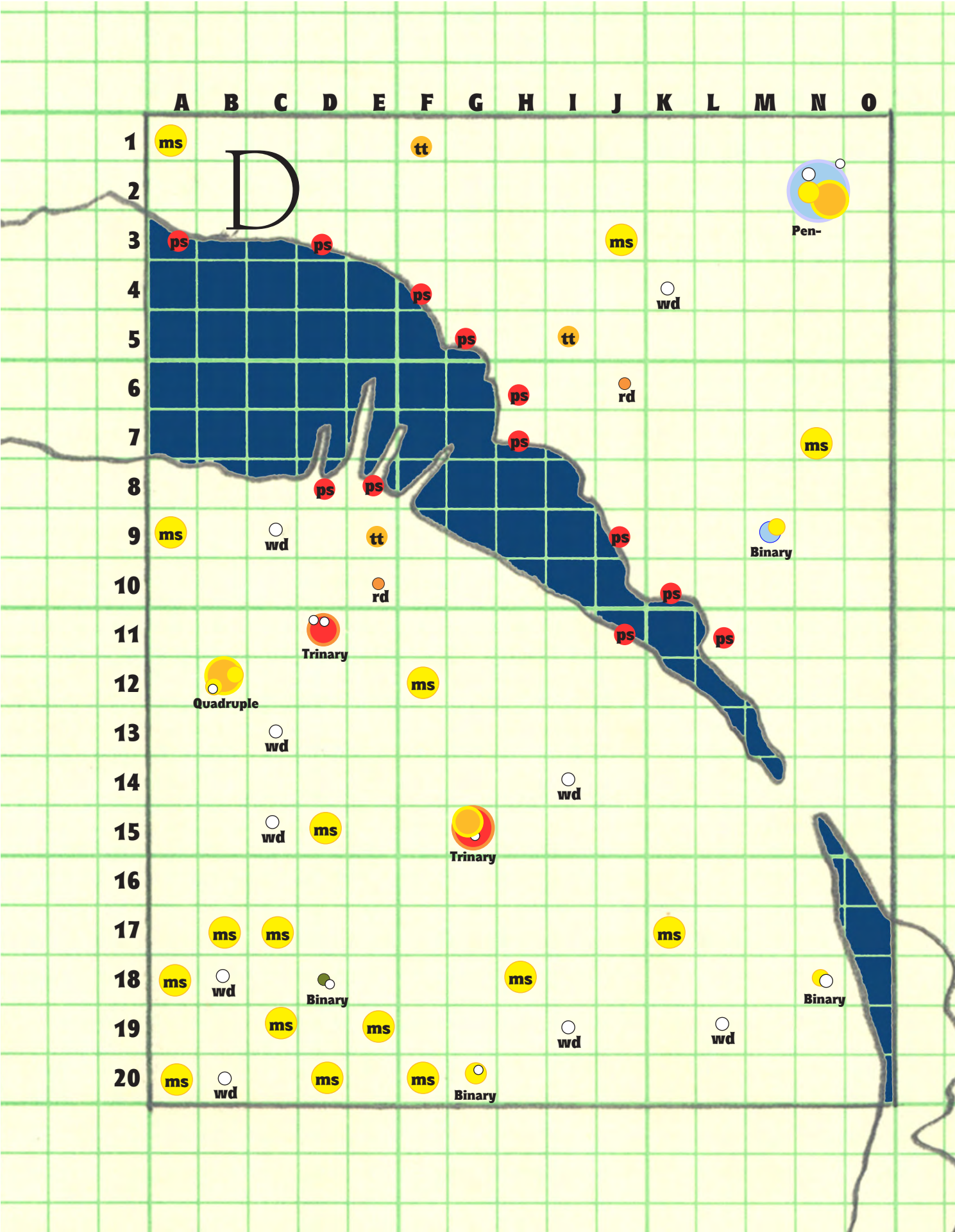


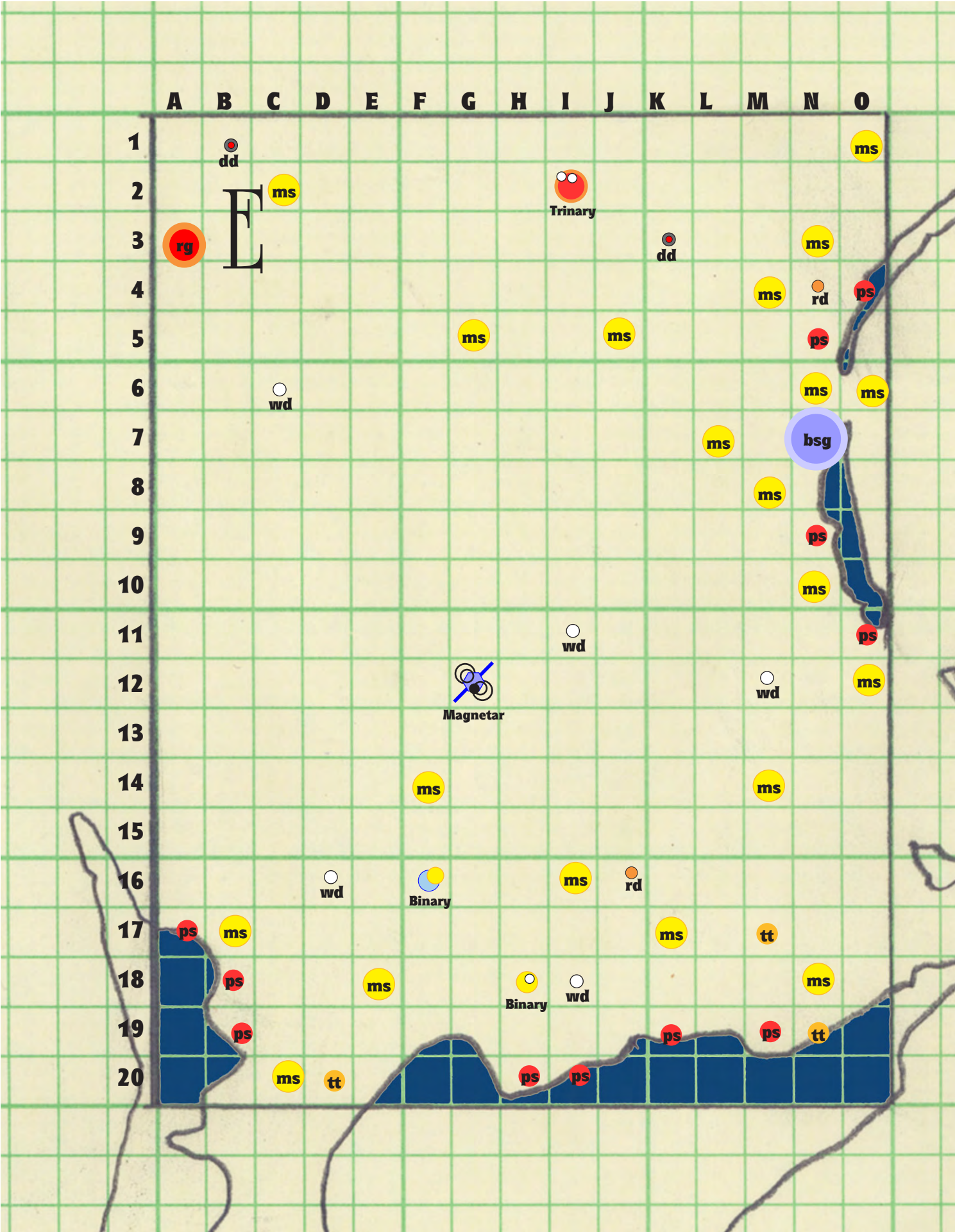


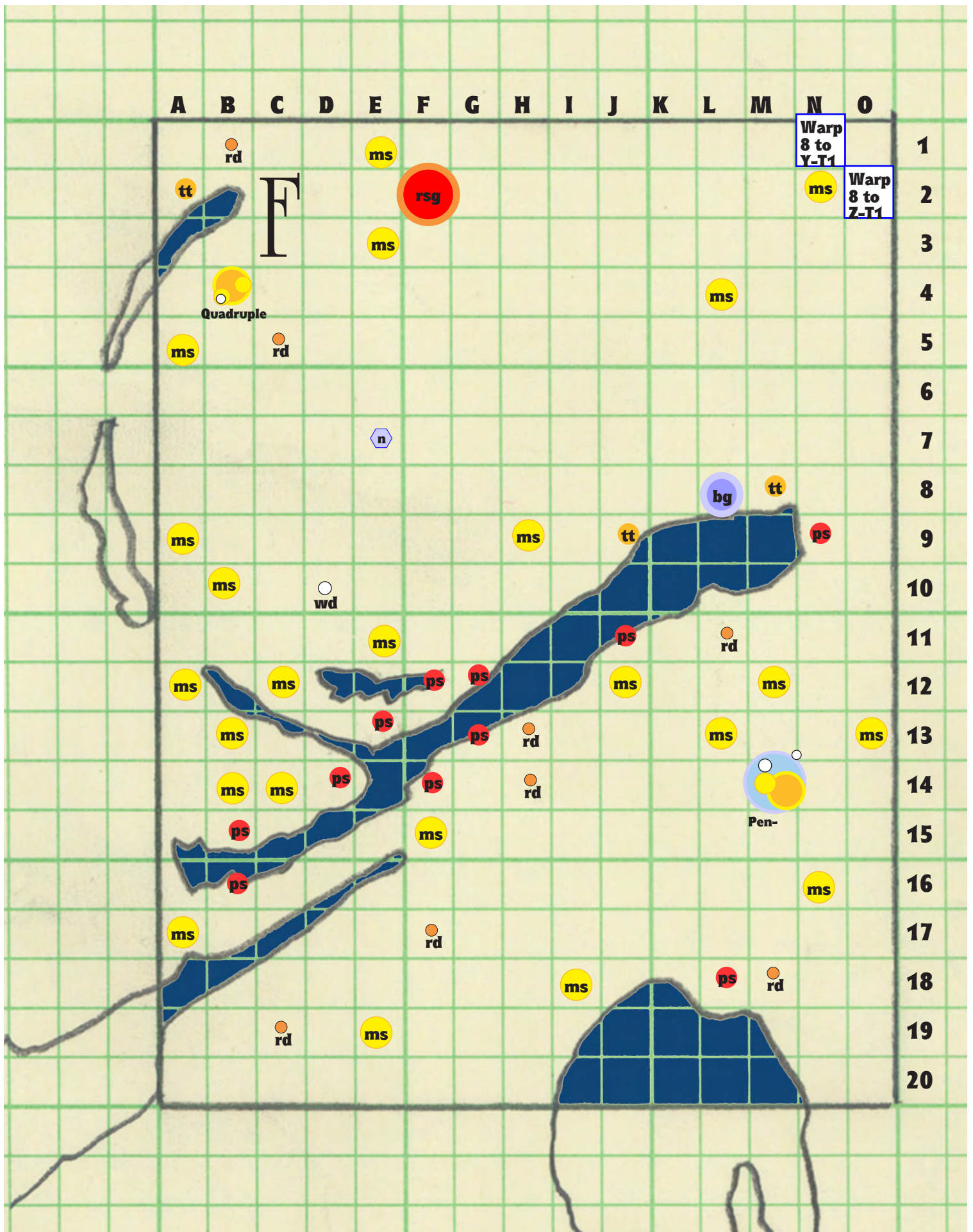
Stars are located and identified by their map coordinates; e.g., the Red Giant is at A-9F (map section followed by coordinates).

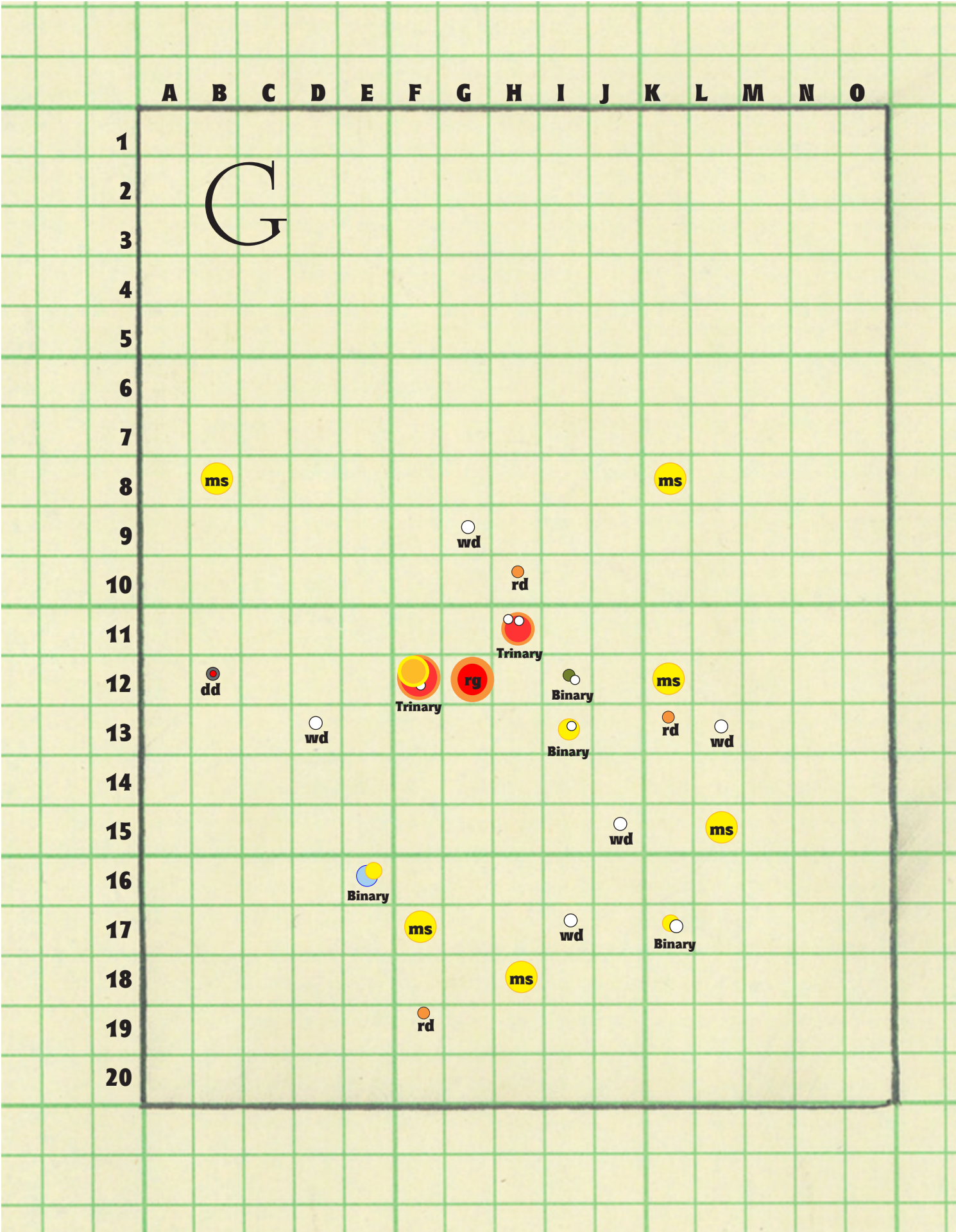


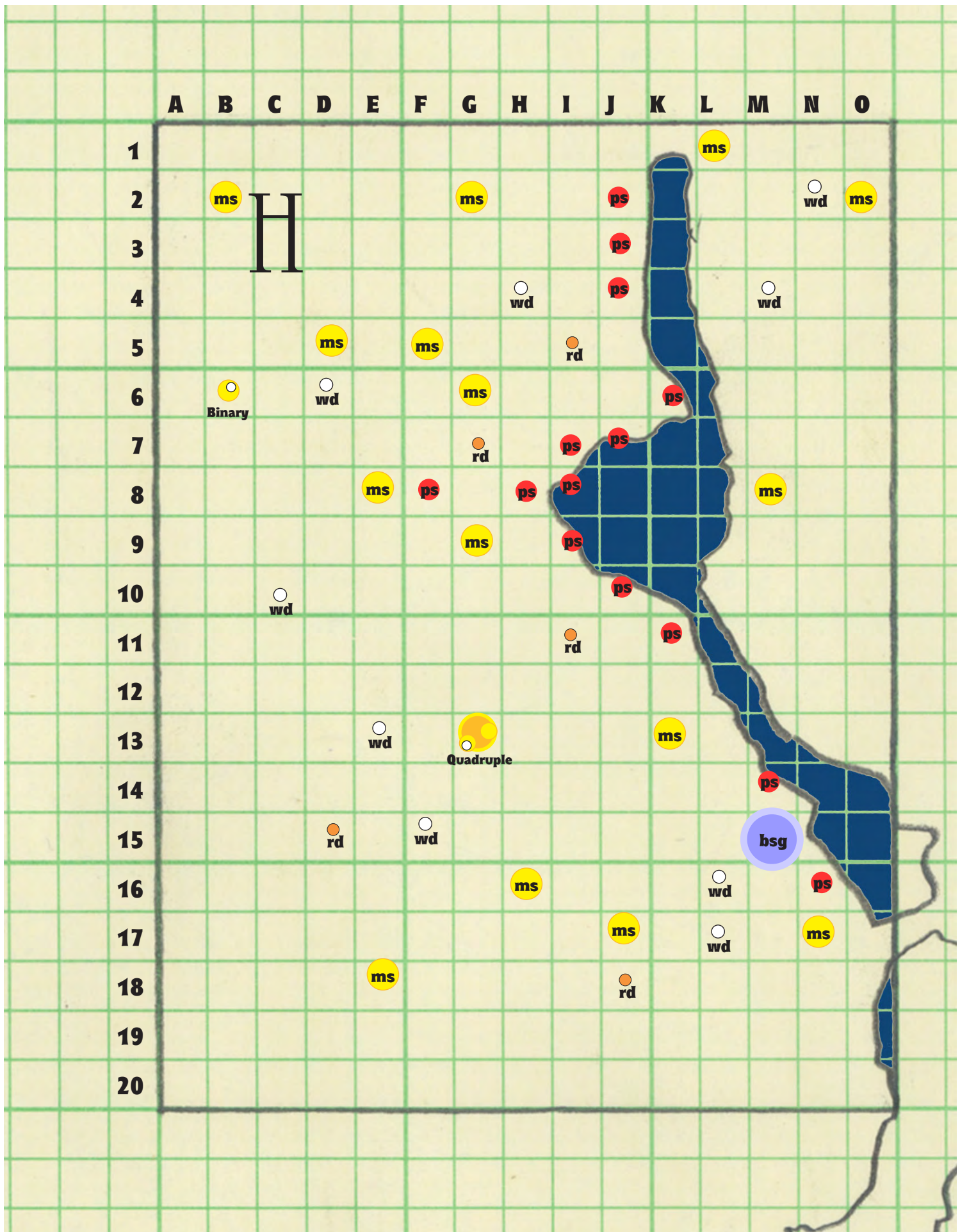


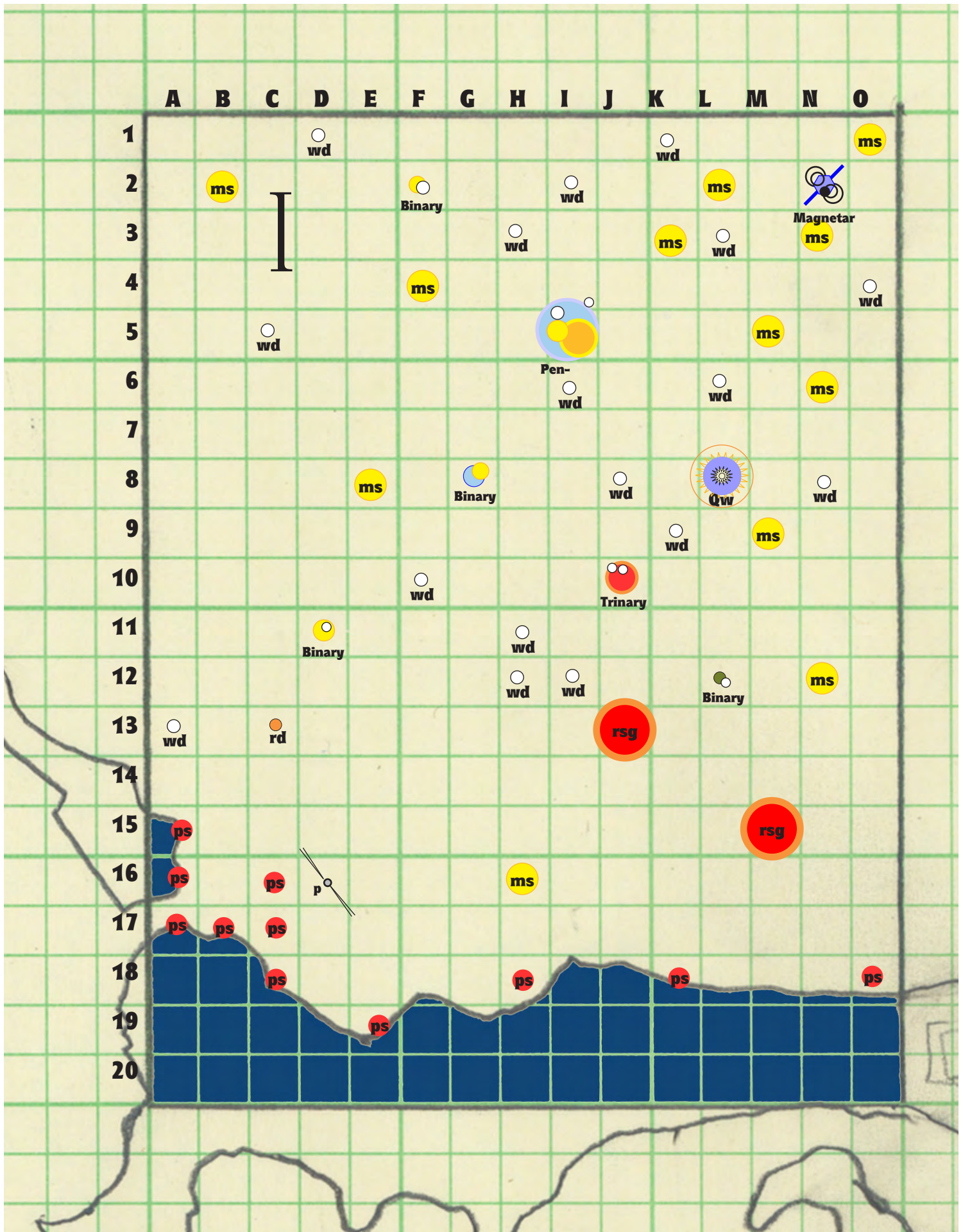


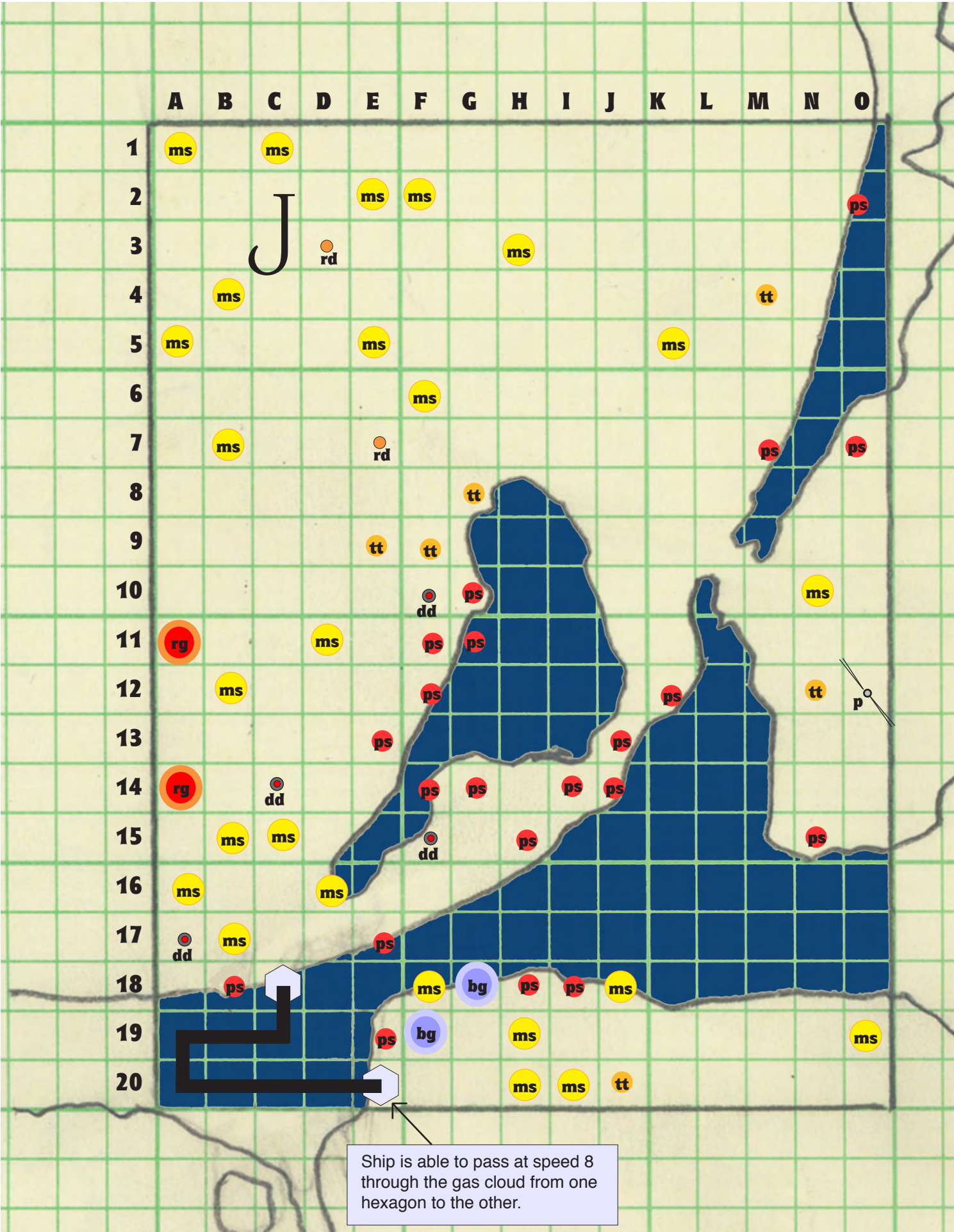


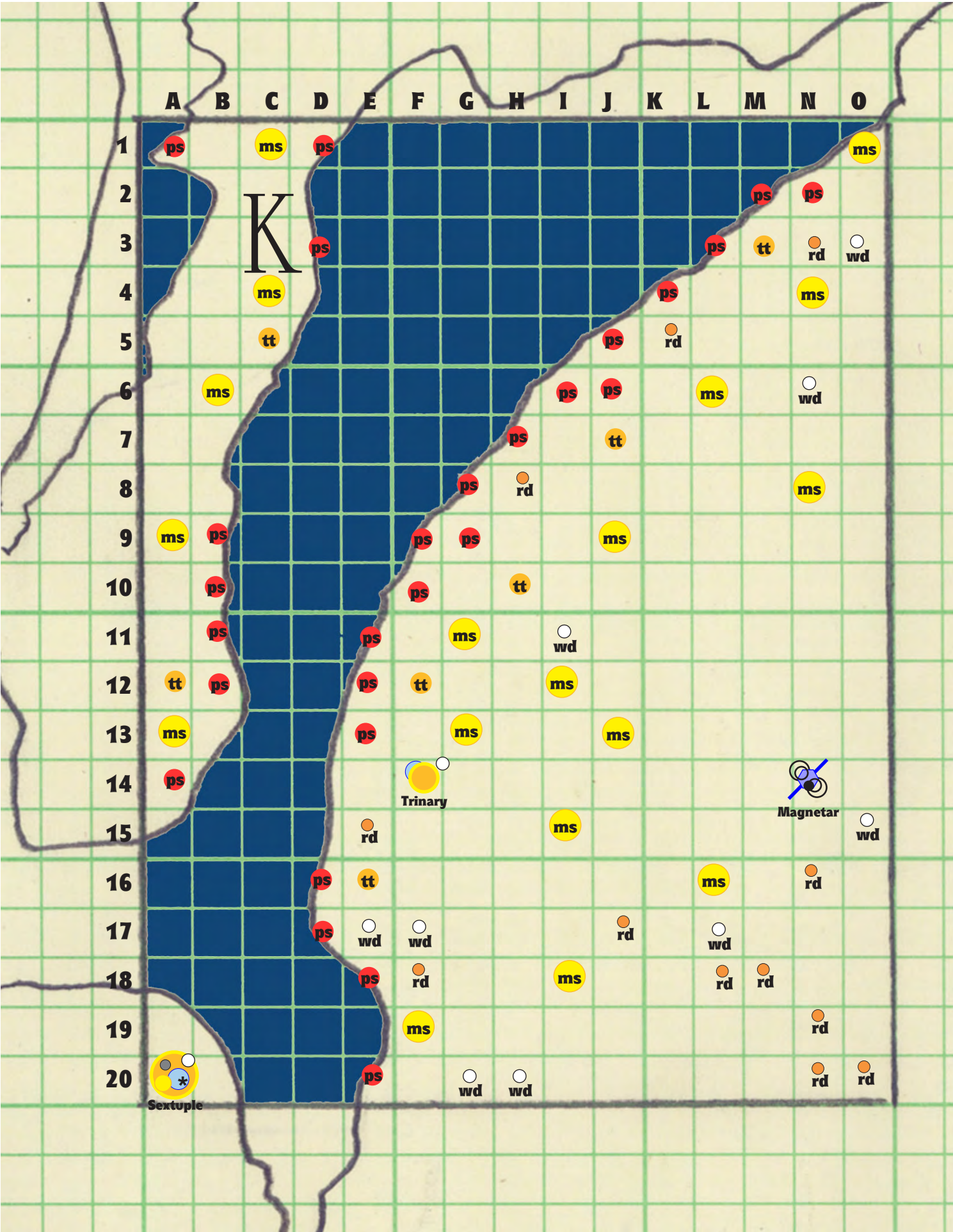


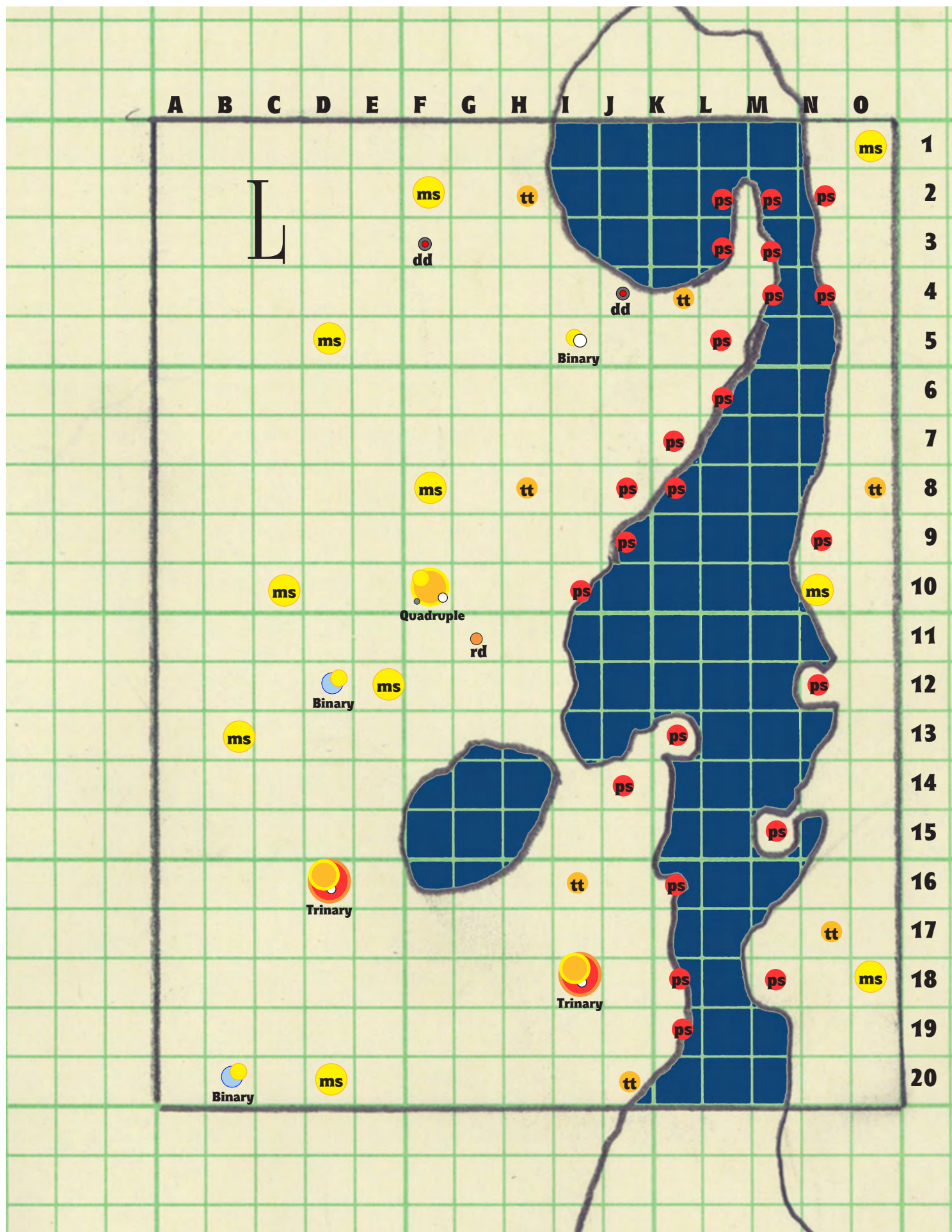




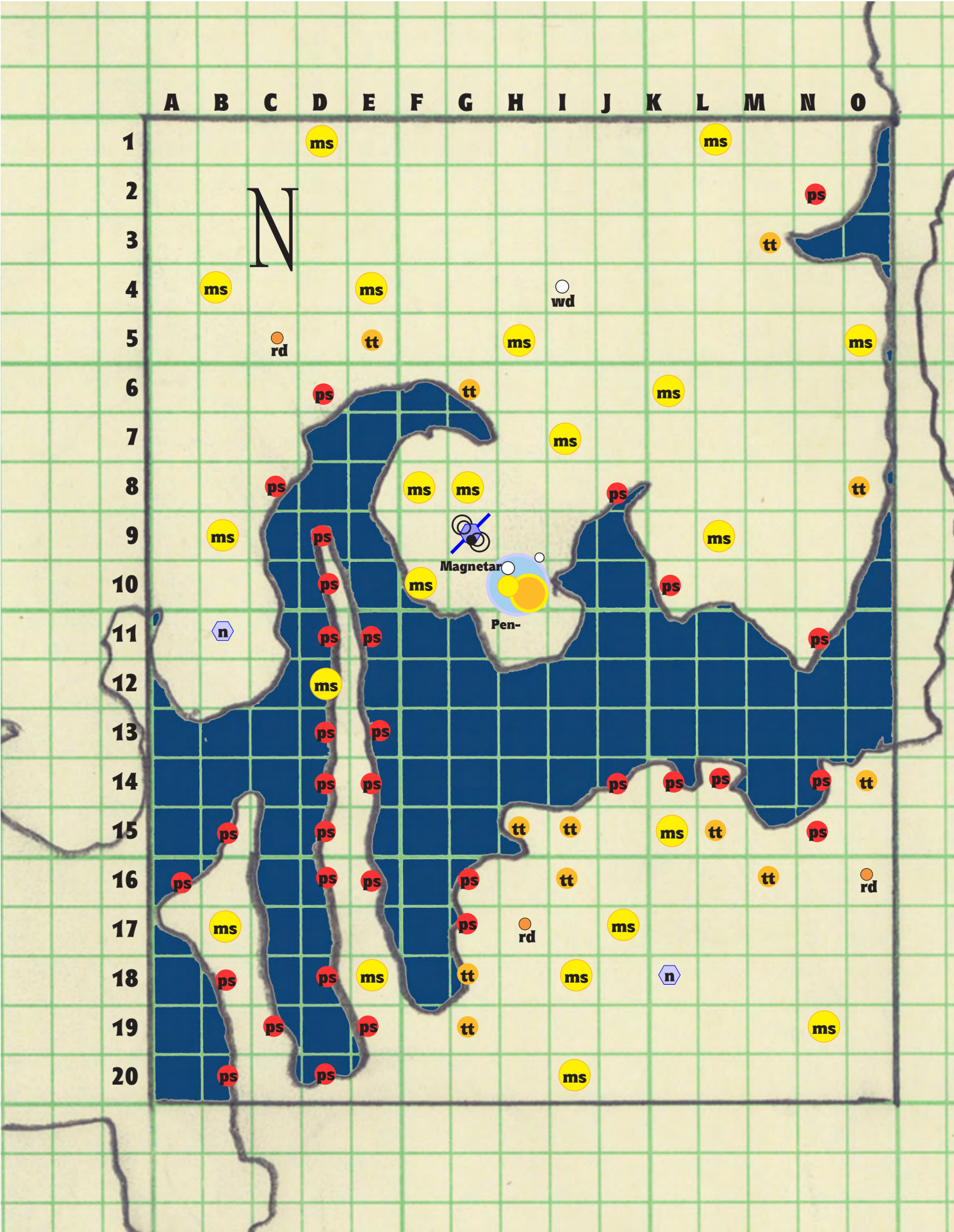


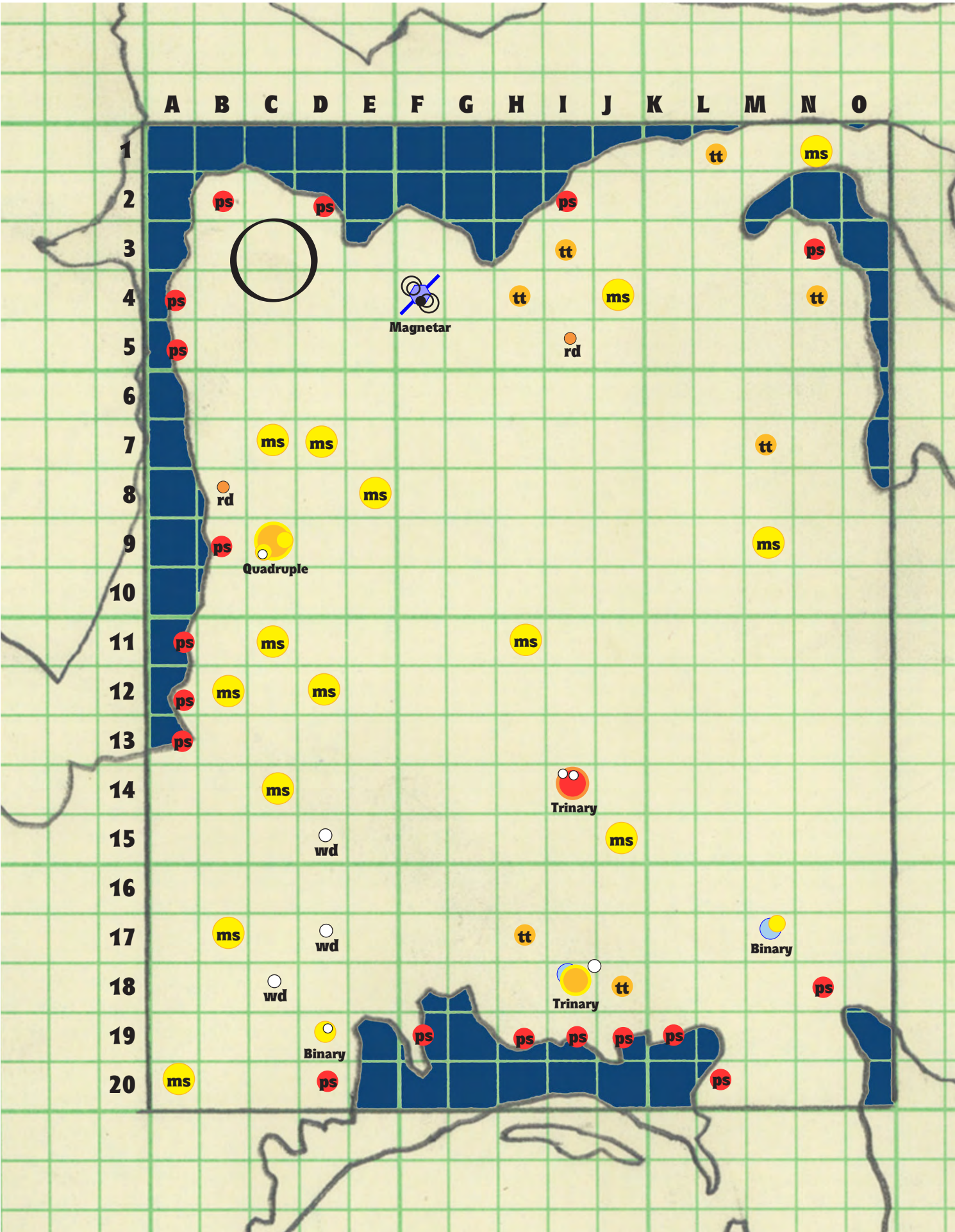


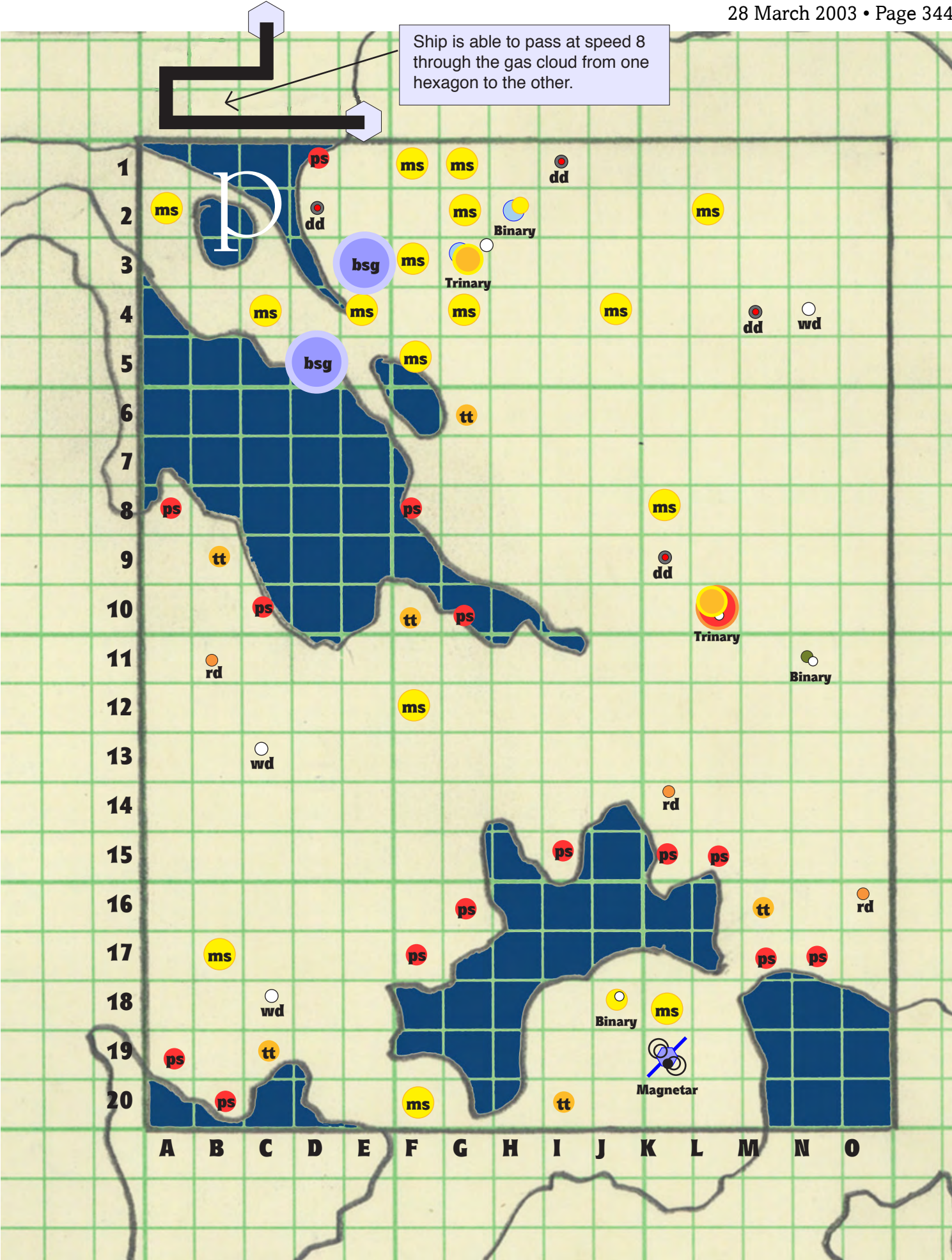


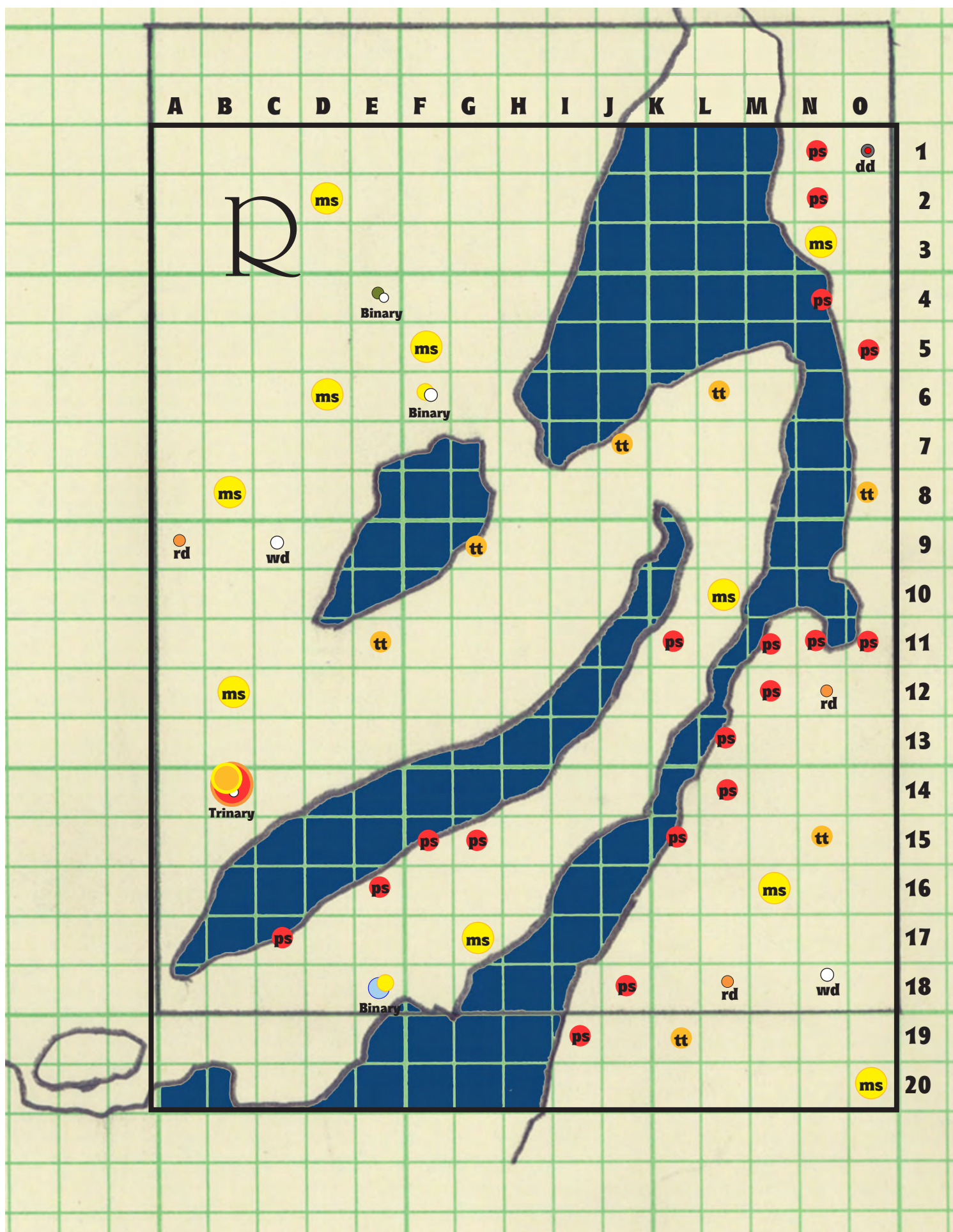


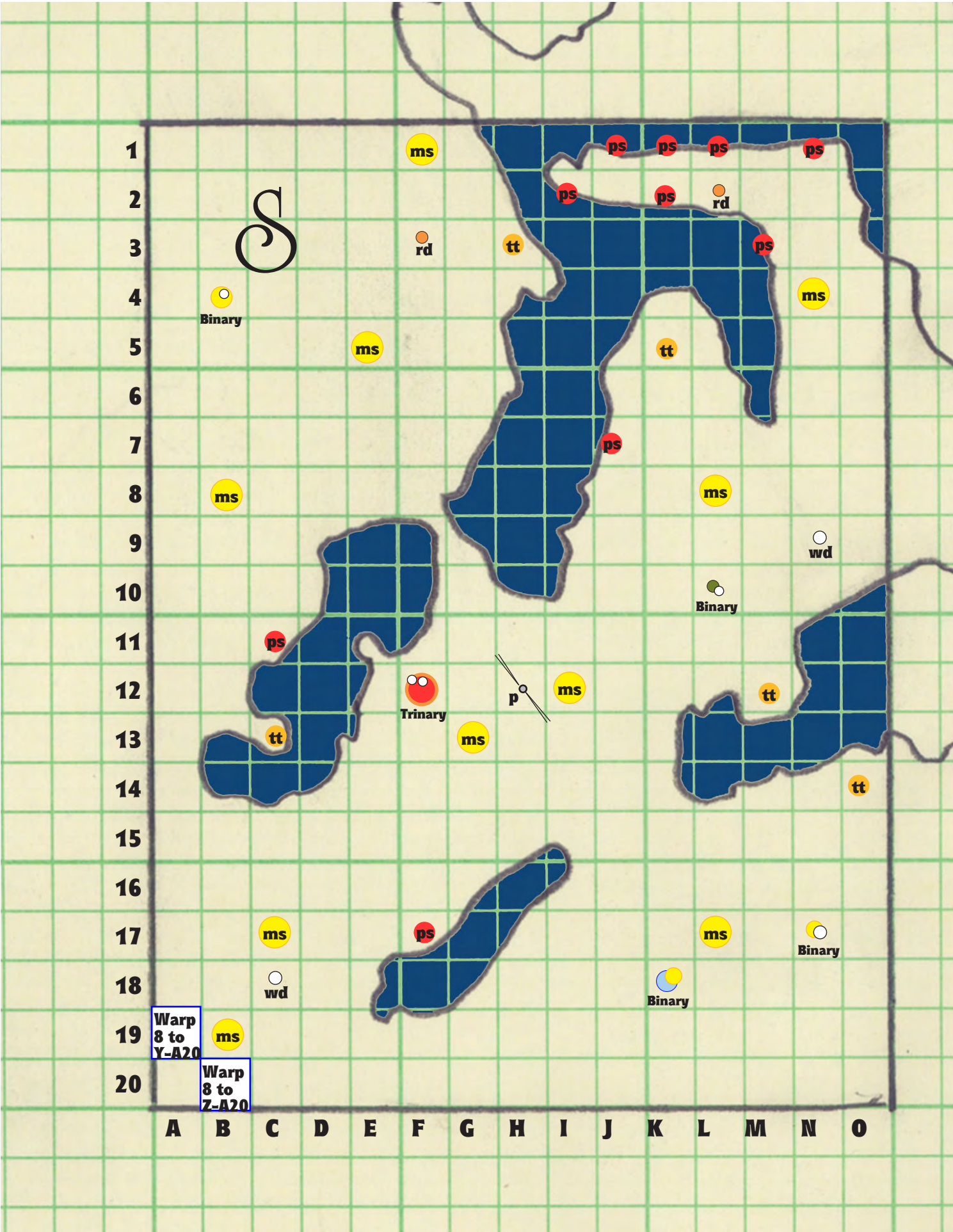
M

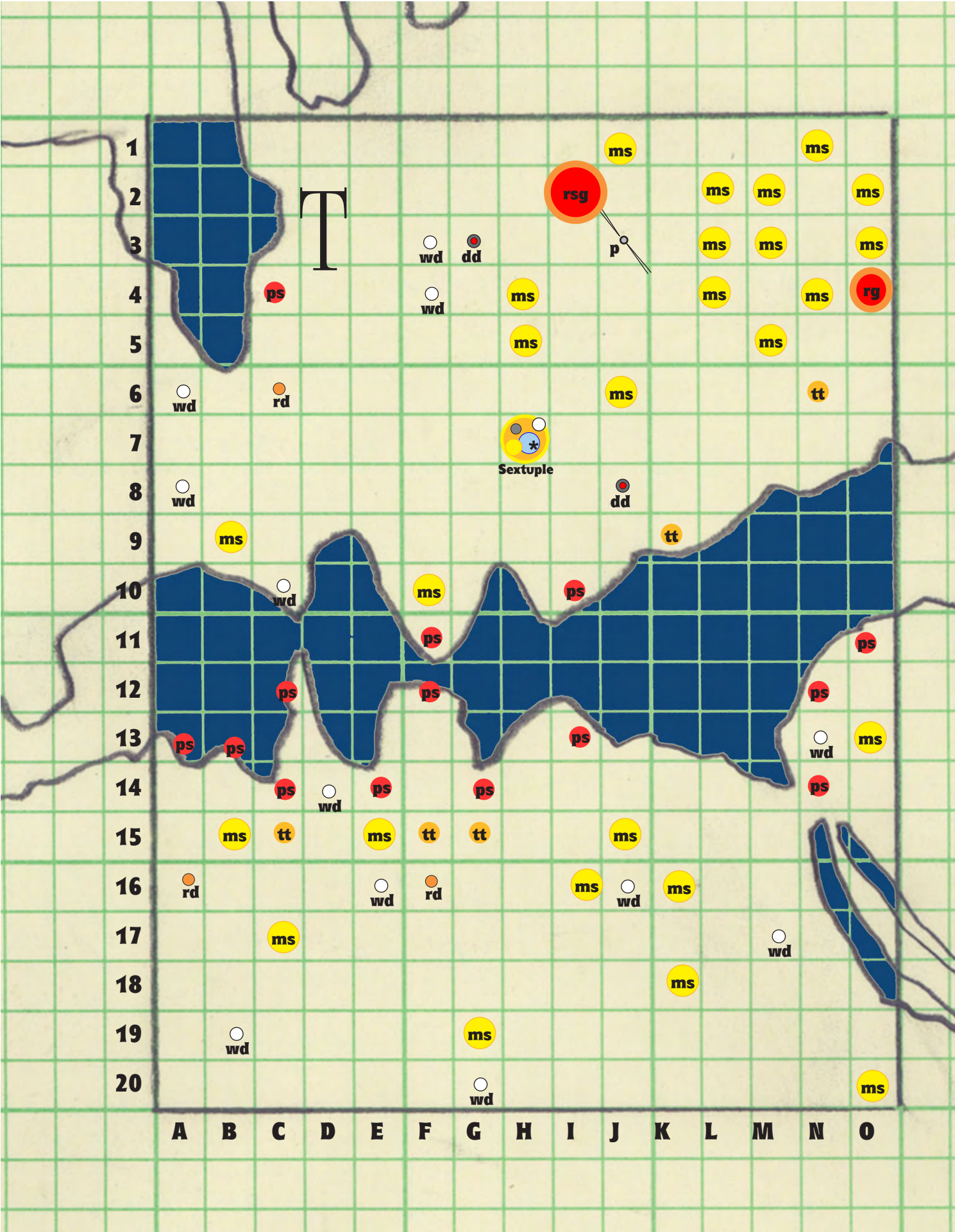


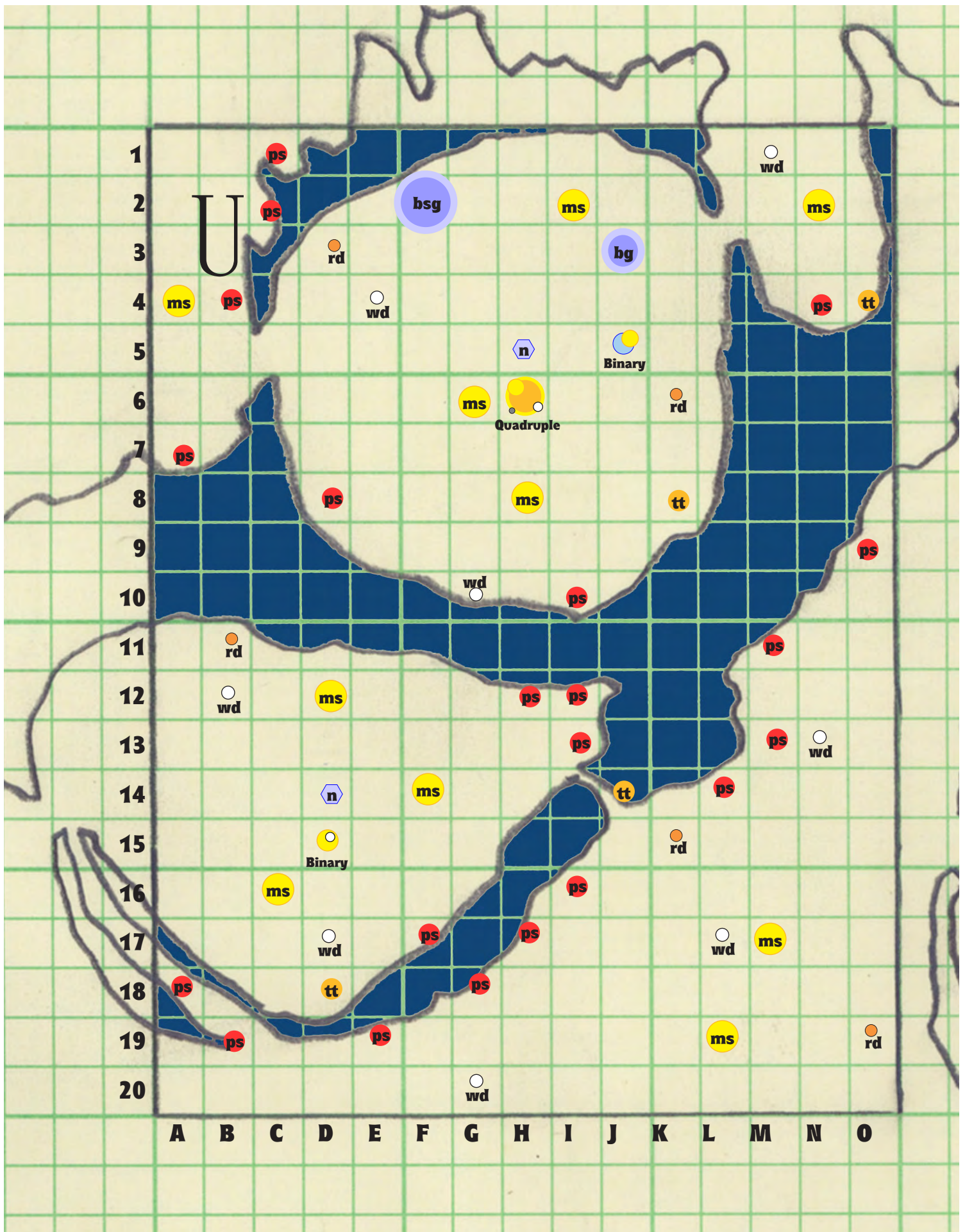


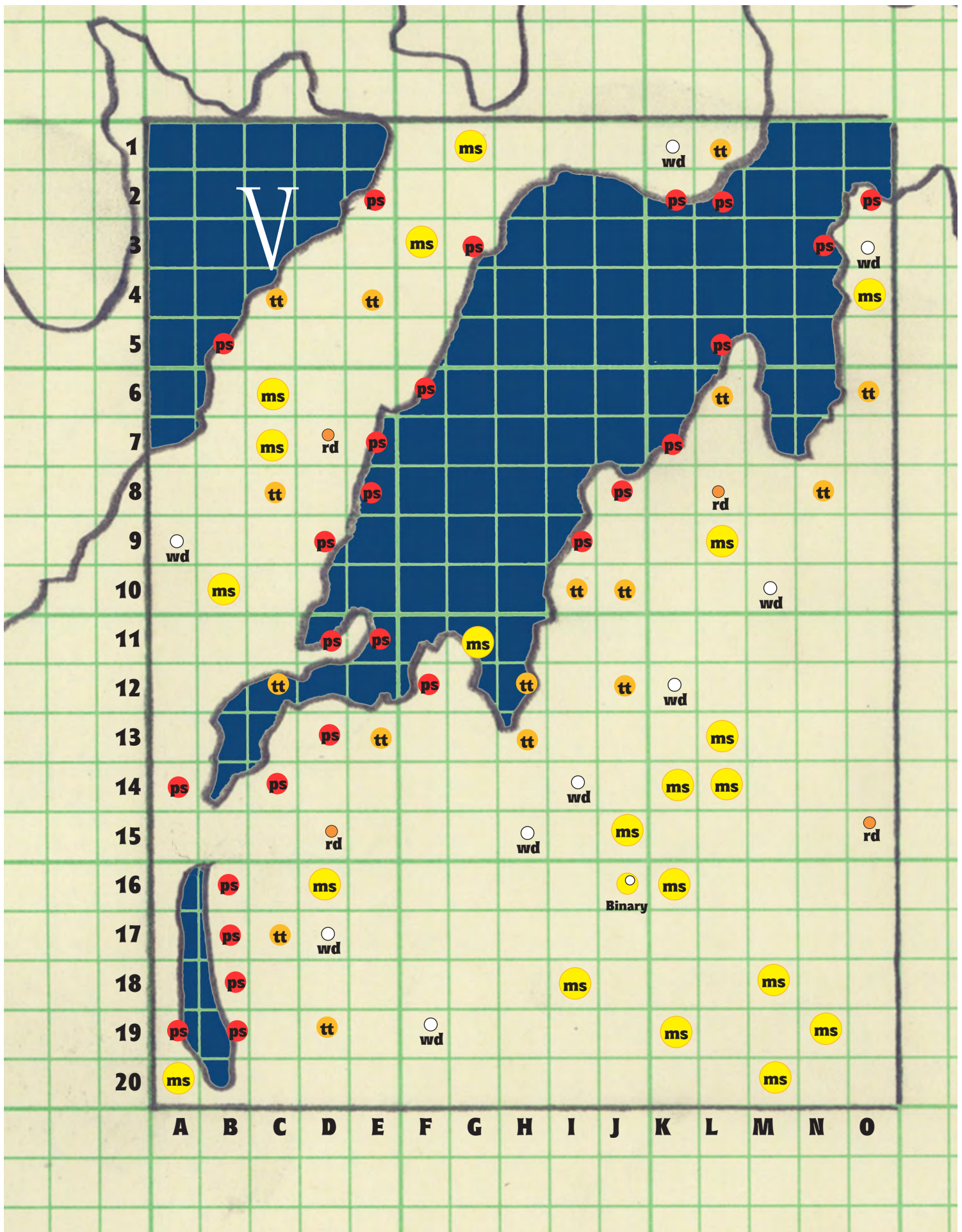


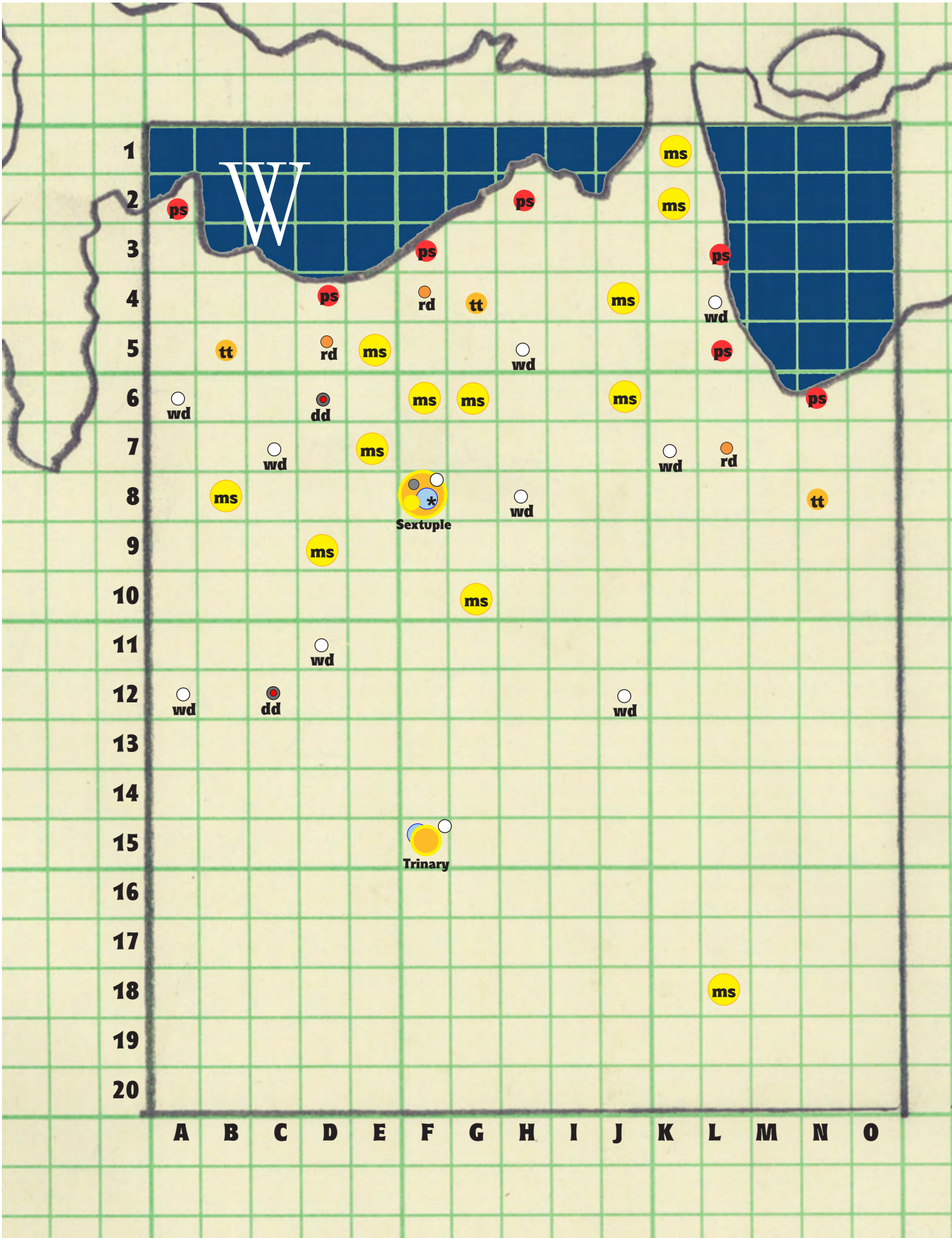


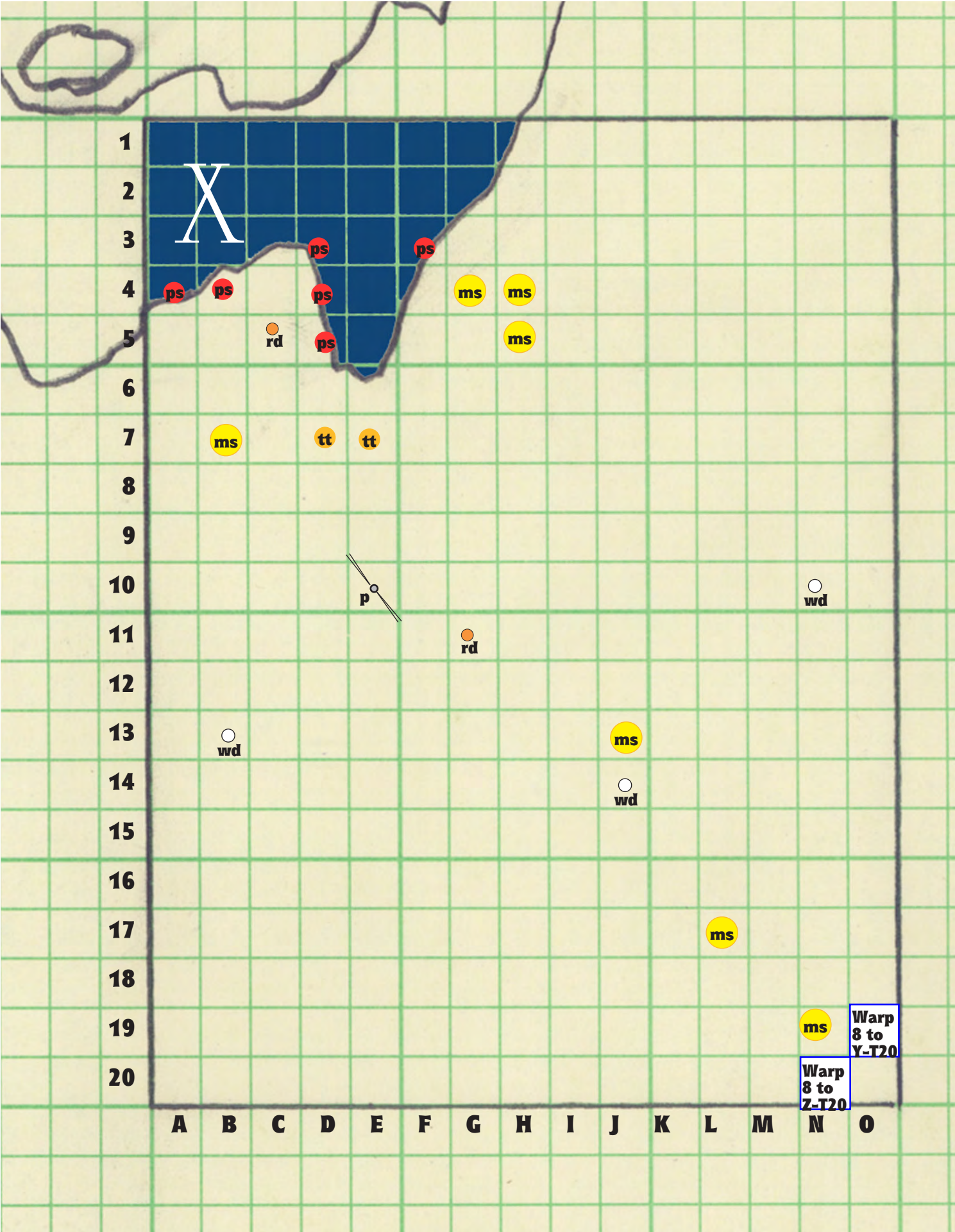


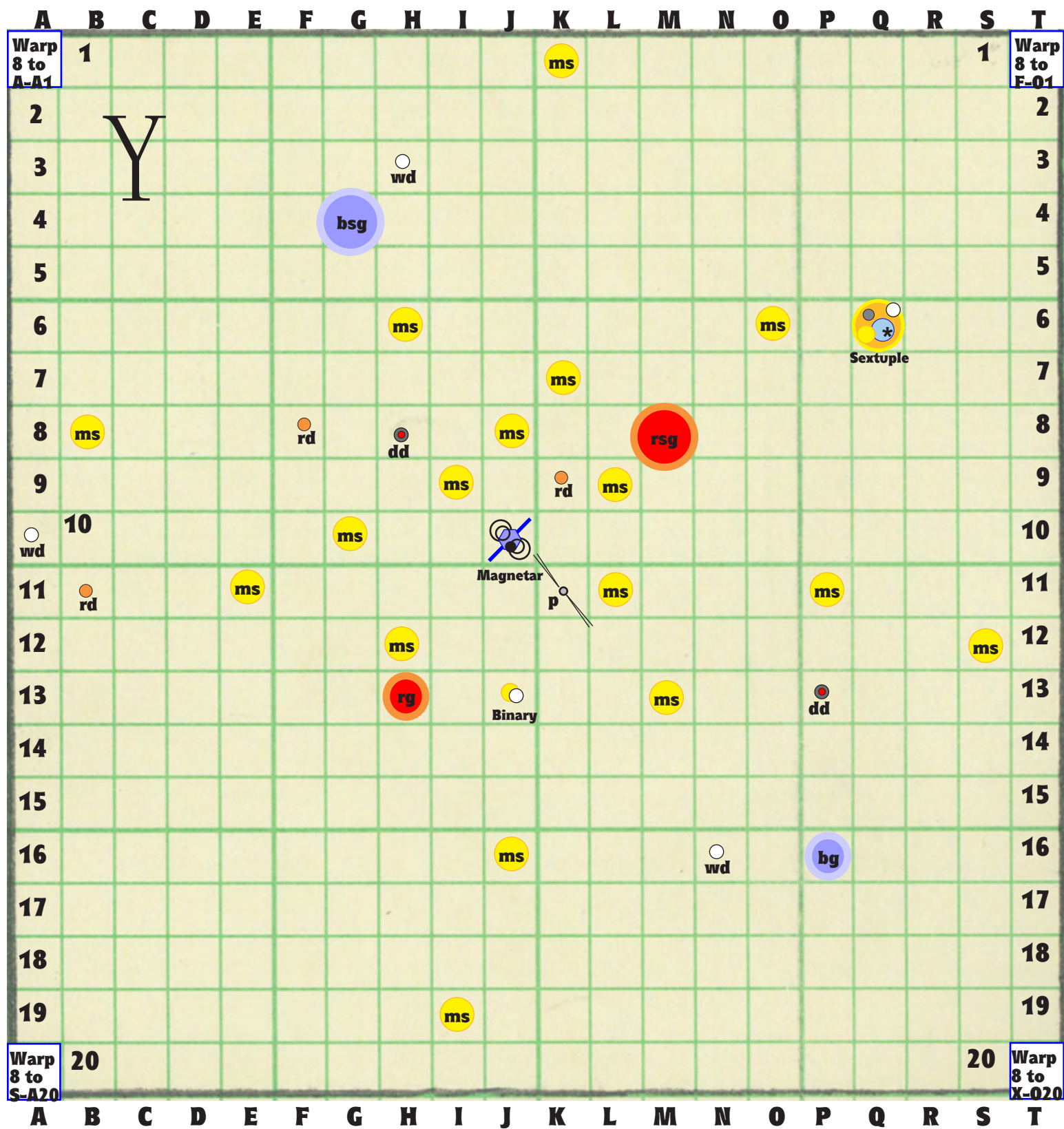


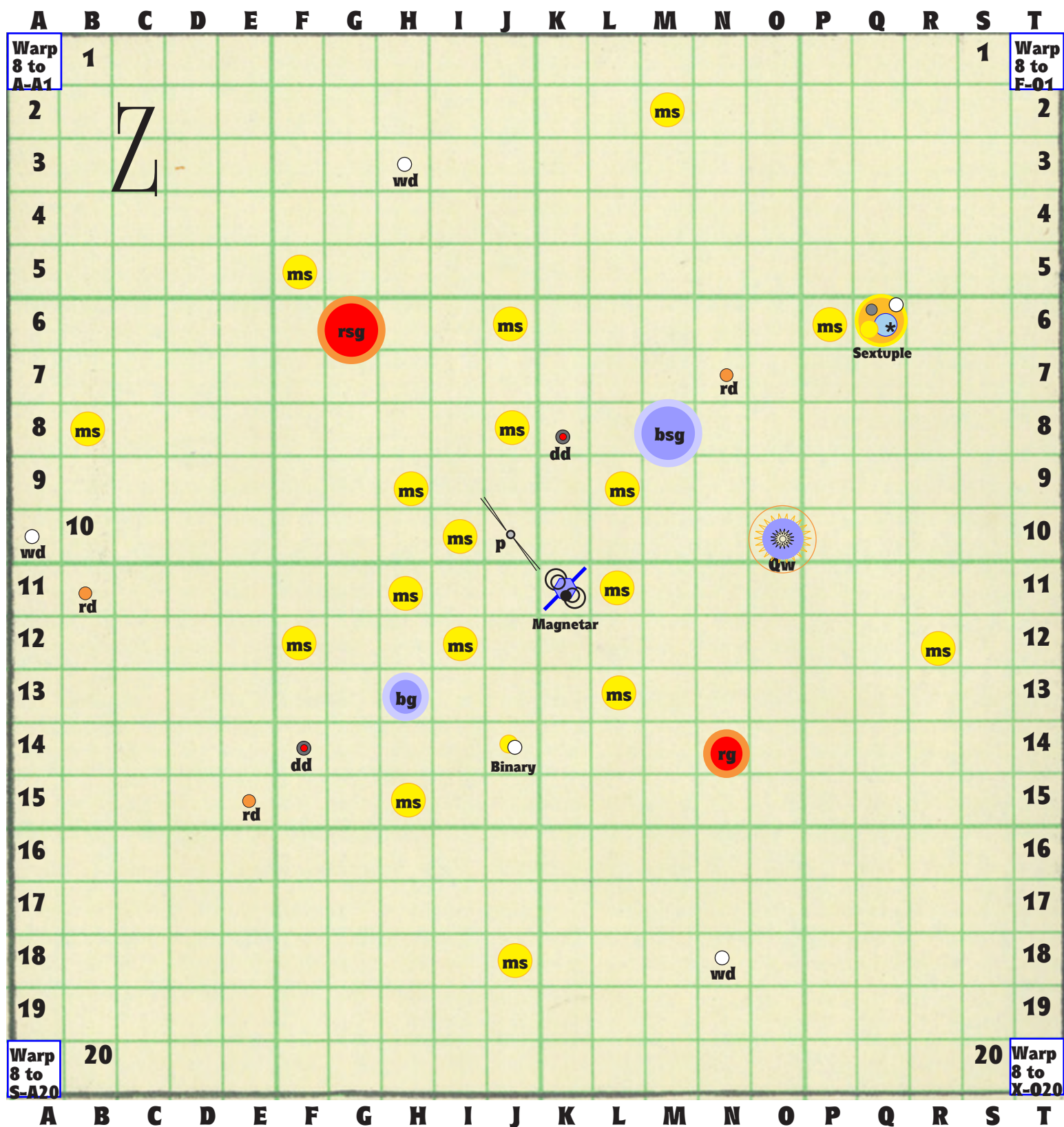












Chapter 19



Addendums



2-Player Minigame

The Race to Tirqii



The Race to Tirqii

The Race to Tirqii is strictly a 2-player game. The number of stars available for development is reduced from that on other maps. The number of hazards is also reduced.

Hazard-free maps: A and C maps will not have hazards.

Amphibians: None

Pirates: 1 placed by each player

Xenophobiacs: 2 placed by each player

Plague Planets: 1 placed by each player

NGC 700,000: Tirqii in the H map replaces NGC 700,000. Capabilities are the same.

Cultures: None

Home Stars: Salamander and Caecilian (home stars cannot be attacked)

Main Sequence Stars: Any or all in each map section can be developed into production centers.

All other stars: Unexplored and undeveloped

Starting IMLO Bank balance: 10,000 MT

Fleet/Ships: None

TAs: Any 44 for free, except TA-900 series of Warp Gate. Must be in sequence.

Banned TAs: TA-900 series of Warp Gate

Warp Juice: Home Star produces Warp Juice for 4 fleets. Each fleet's warp movement consumes 2 warp juice, which is double that in other games.

Hostility index: The 2 players are hostile under all circumstances. No "understandings" are allowed. A player with a superior force normally will attack his opponent.

Victory Condition: Double your opponent's MT production, which is reported on the Warp Ripple Report as "Total Income for Start of Next Cycom." Note that this figure excludes Tirqii income.

Cosmology

Blue Supergiants: |
 Red Supergiants: | 16 altogether
 Blue Giants: |
 Red Giants: 2
 Main Sequence: 32
 T Tauri Stars: 12
 Tirqii: 1
 Exploding Star: 1
 Home Star: 2

Protostars: 32
 White Dwarfs: Many
 Red Dwarfs: Many
 Dead Dwarfs: 8
 Pulsars: 8
 Neutron Stars: 2
 Magnetars: 2
 Multiple Stars: 24

Blue Supergiant



Red Supergiant



Blue Giant



Red Giant



Main Sequence, Yellow



T Tauri Stars



Protostars



White Dwarf



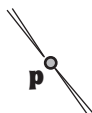
Red Dwarf



Dead Dwarf



Pulsar



Neutron Star



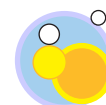
Magnetar



Gallery of Multiple Stars



Sextuple



Pen-



Quadruple



Quadruple



Trinary



Trinary



Binary



Binary



Trinary



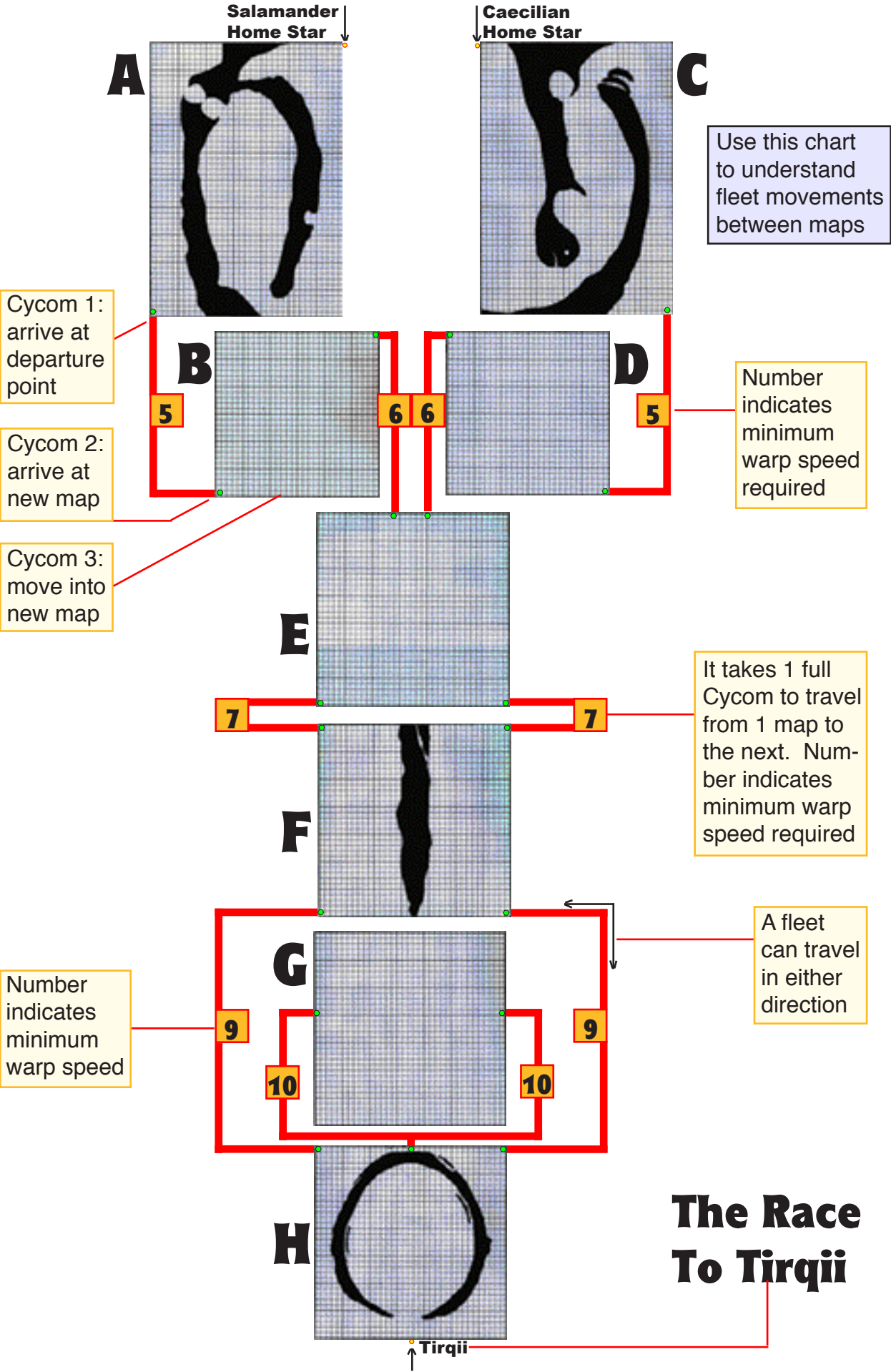
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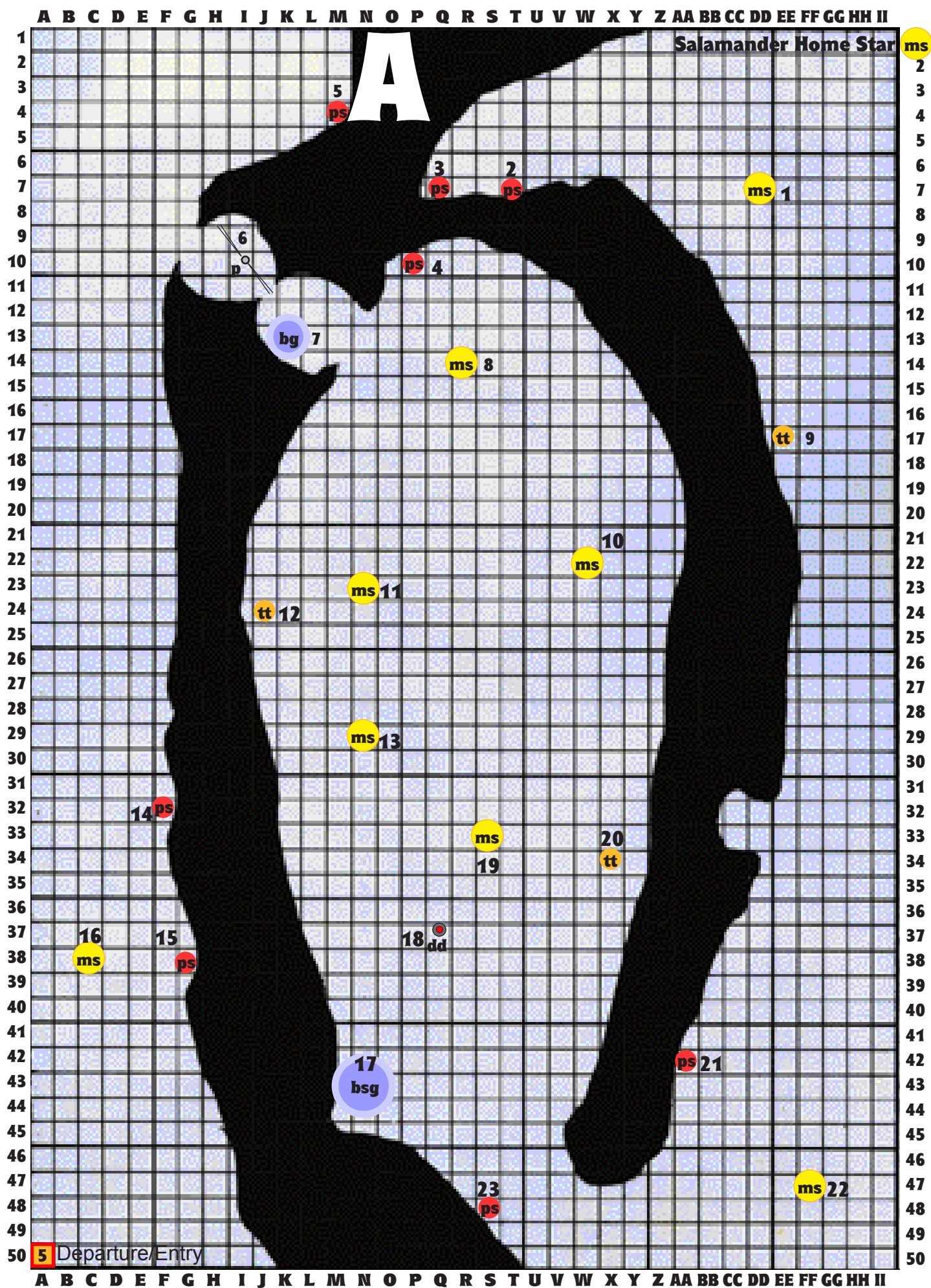


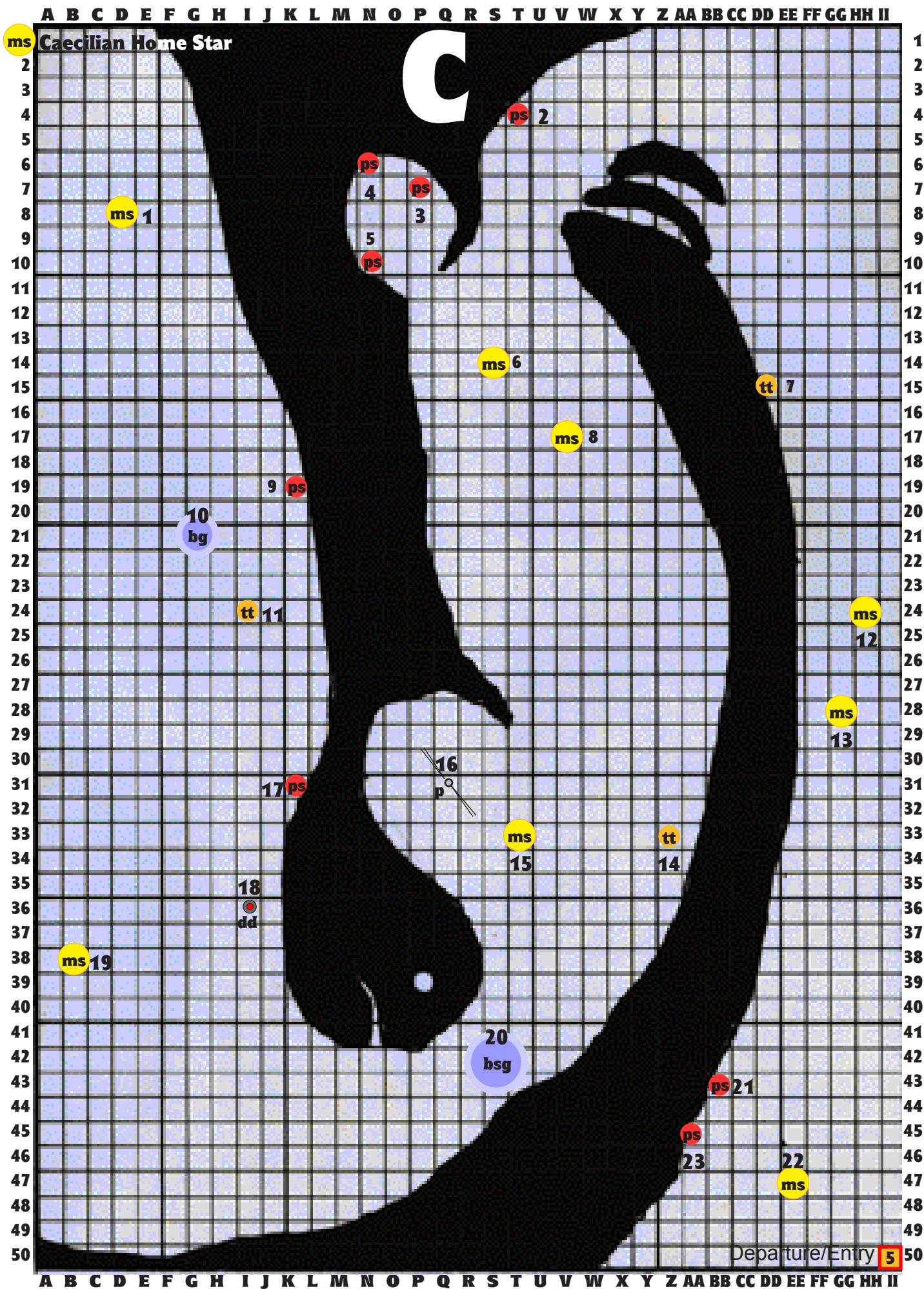
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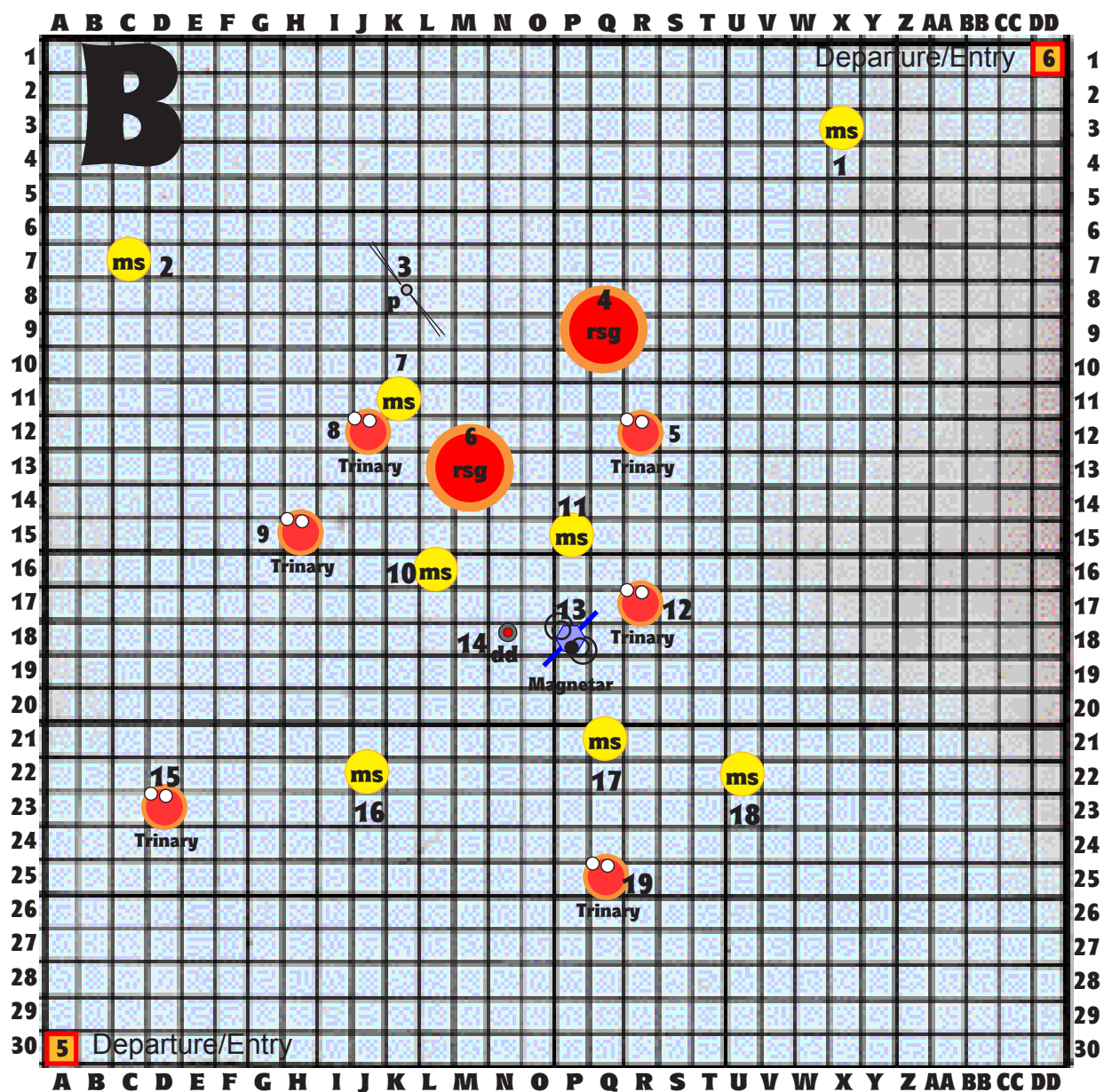
Exploding
Star

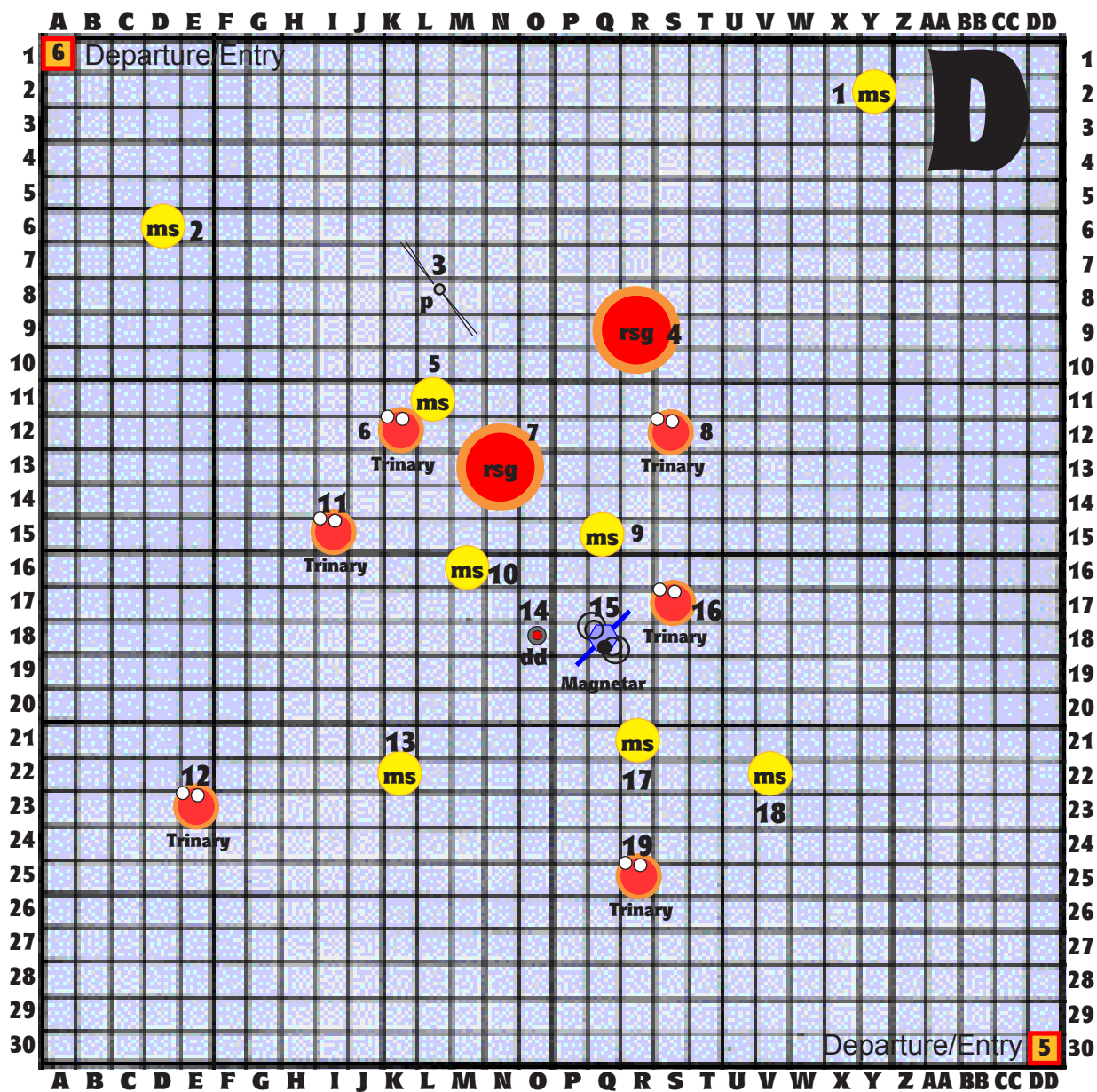
Stars are located and identified by their map coordinates; e.g., E-18H (map section followed by coordinates).

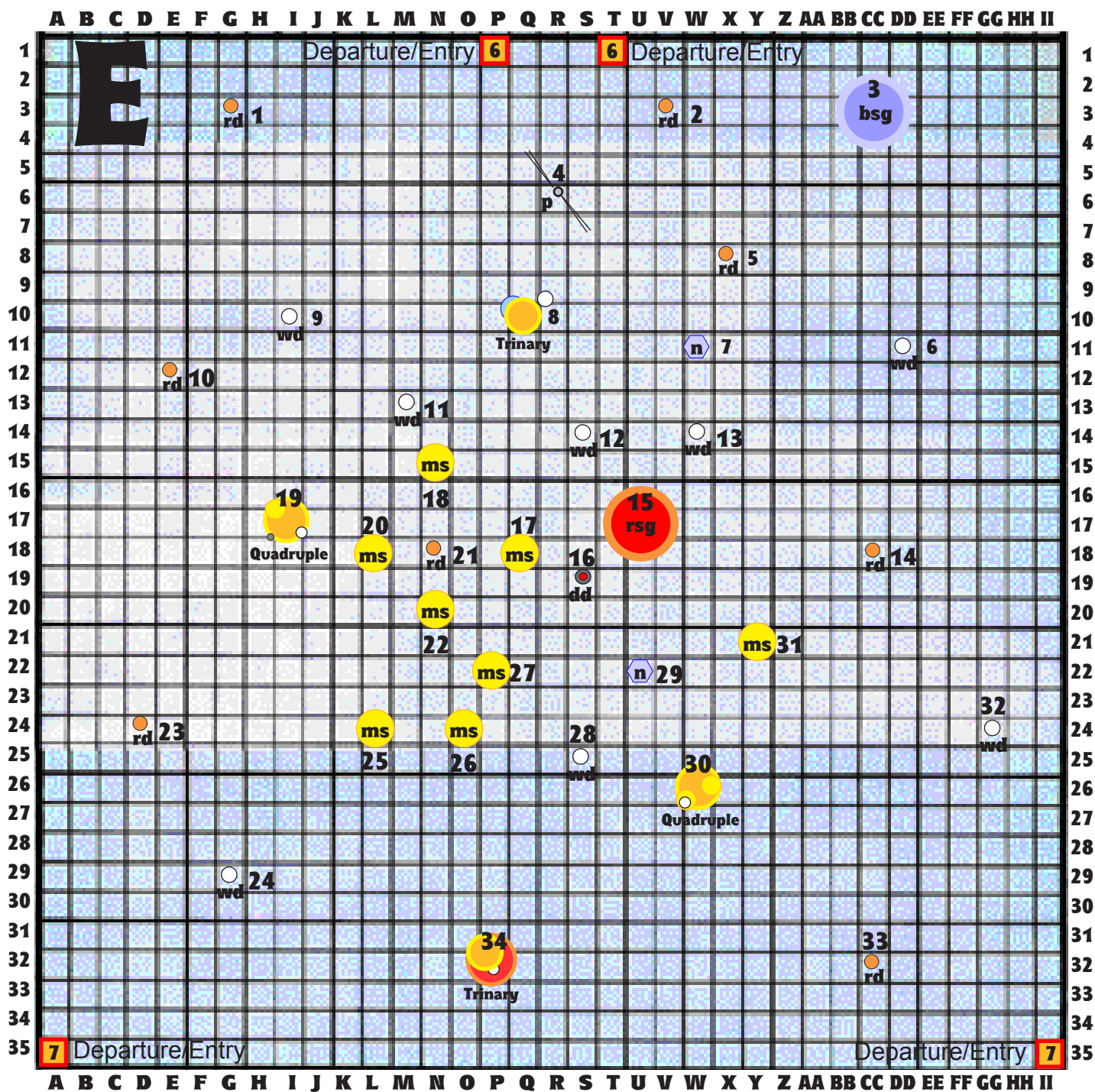


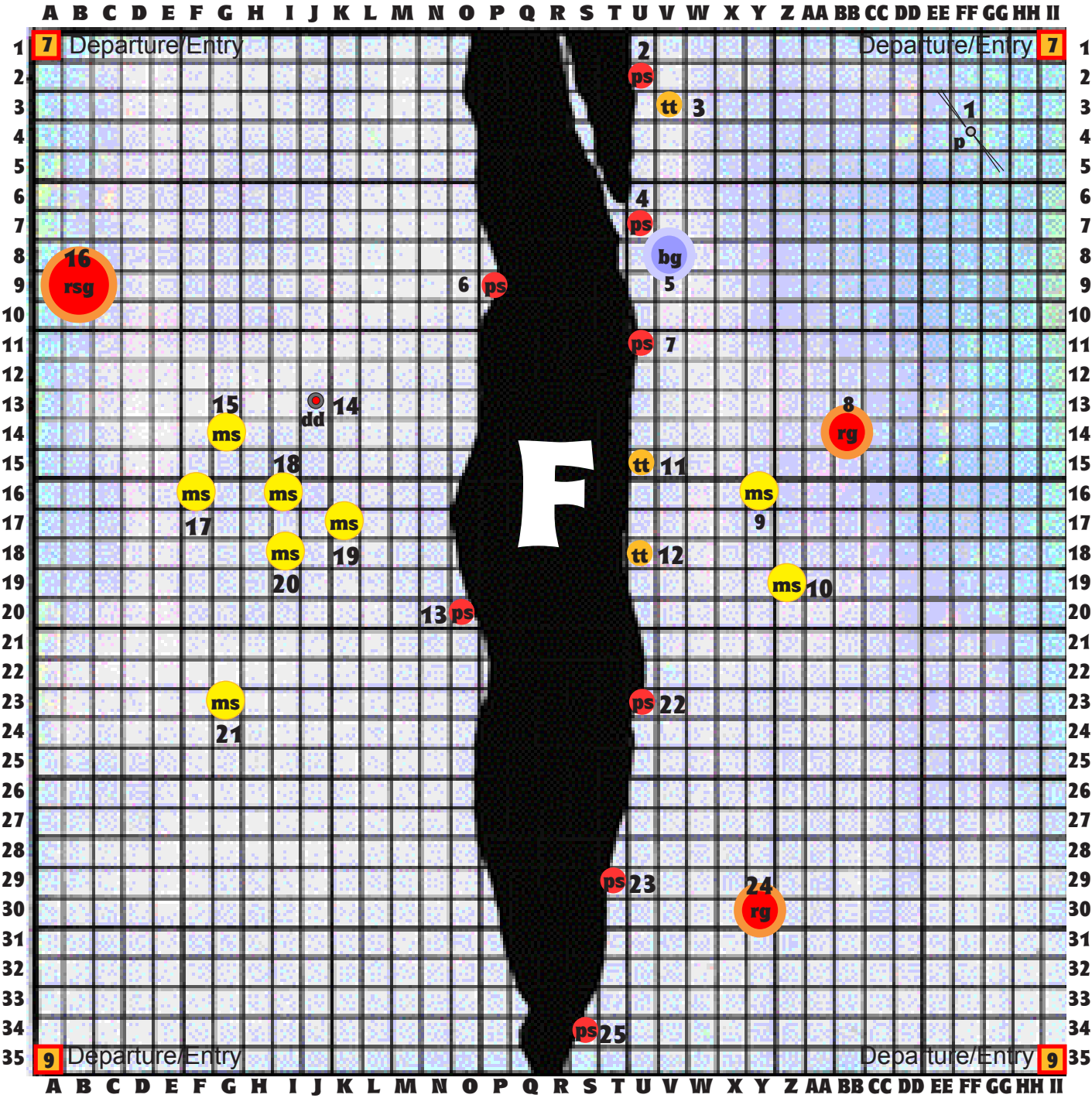


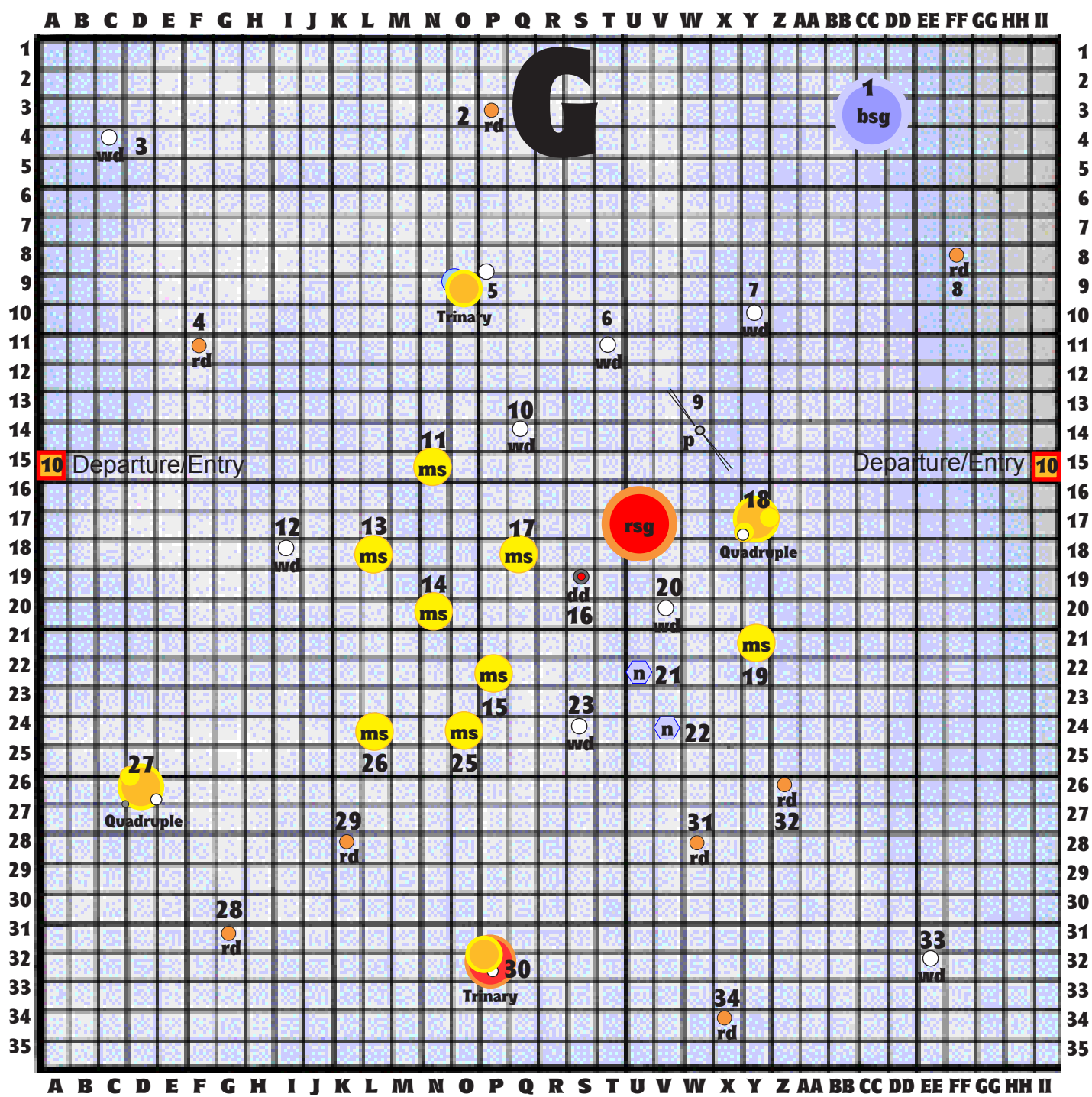


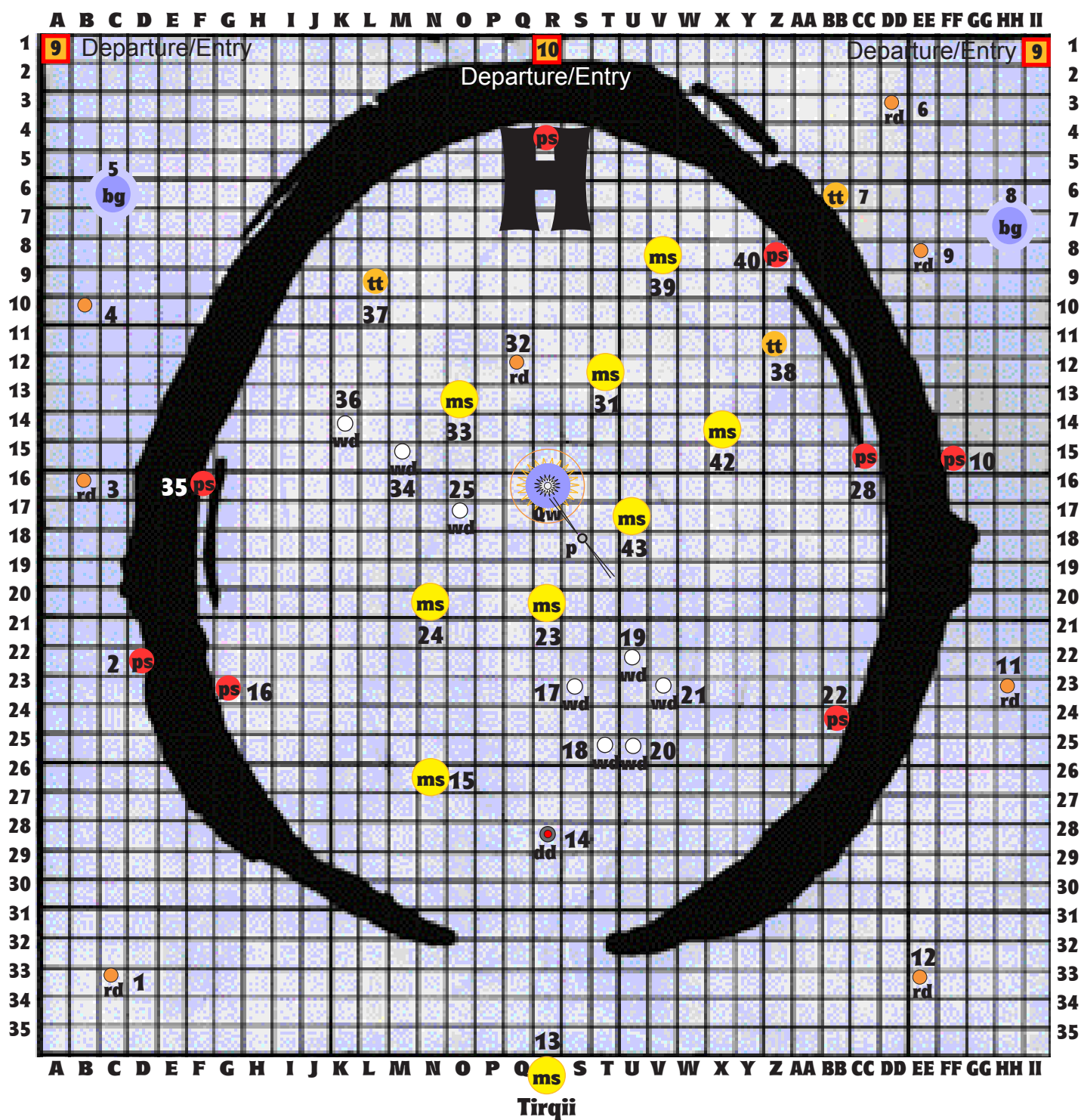












The Race to Tirqii



A Tripedal Horror of the Qw Empire gesticulates at a Stalk-Eyed Corpulis as their ectoplasmic Star Cruiser joins a Caecilian Petunia at the home star of the dreaded Eli. A sickly Symbiotic Vulture defecates the voluminous output of its digestive system on the observation bubble after dining on the late emperor of 't Doff.

Errata.1 – Fighter Bay Modules

TA-372 Fighter Bay Modules, p.224, specifies that the Modules must be carried by a “standard warship (p.131) of 9 guns or larger.” It is an option by pre-game player agreement that TA-401 Super Moon Fortress p.236 and TA-420 Orbital Moon Fortress, p.238, can carry Fighter Bay Modules. The modules are installed 1 per 3 guns. The MF carries 2 Fighter Bay Modules per 8-gun MF module for a total of 8 Fighter Bay Modules for an MF32. The OMF may carry 5 Fighter Bay Modules. Note that TA-1001 Super Planetary Fortress, p.430, and TA-421 Suicide Moon Fortress, p.240, may *never* be outfitted with Fighter Bay Modules.

Errata.2 – Initial placement is move 0

Initial placement on the battle board should be recorded as the “0” position. First move advances the ship to the “1” position. Illustrations that contradict this protocol will be adjusted at a future date after the game designer dies of old age.

Errata.3 – Ship cannot fire weapons from initial warp-in site

No ship can fire a weapon from its initial position on the battle board. It must wait until after first move is made by it or other ships. This rule also prevents the various fortresses from using weapons until after ships make their first move. A ship’s first move may not be to enter pre-warp or Sub-Warp; the first move must be made in normal space. After ships make their first move, all weaponry may be used normally.

Errata.4 – Ship’s first move on the battle board

There has been confusion about the nature of a ship’s first move on the battle board. All ships make their first move on the battle board simultaneously. That includes ships warping in, standing idle, stationed on ambush or conducting a blockade. Ships on ambush can delay their “first move” to later in a battle, but can never leap from ambush prior to first move. First move after warp in is always made at legend speed in any direction.

Errata.5 – Upgrading a ship’s TAs at a blockaded star

A ship can upgrade the mark of its TAs at a production center star that is blockaded provided the ship lands on the planet of value for 1 battle board turn. The TA upgrade cannot cost MT. New TAs cannot be added at a star under blockade.

Errata.6 – Can’t add TAs during blockade

It is common that a ship will be built in 1 Cycom and have TAs added year 1 of the following Cycom and still warp out that same year. If the production center has been put under blockade during the Cycom the ship was under construction, the ship can be completed year 1 of the following Cycom, but TAs cannot be added if not already paid for during the initial Cycom of construction. Existing TAs mounted on the ship are automatically upgraded prior to departure on year 1 from a star under blockade.

Errata.7 – Surprise Attack

A surprise attack by 1 empire against another allows the defender to operate offensive and defensive weaponry normally. However, if 2 ships are in a pre-existing close proximity, such as 2 ships engaged in warp juice mining activities at the same Magnetar, the attacker gets 1 free shot. The defender's ship will deploy full defense. This sort of situation does not apply at a production center star.

Errata.8 – Need for Deflectors on a Small Ship Carried by a Large Ship

A small ship carried by a large ship requires deflectors to protect the small ship from asteroids, radiation, heat, magnetism or gravity. If a small ship does not carry a necessary deflector, it will be destroyed immediately upon its departure from the large ship. The inexpensive TA-110 Super Deflector, p.165, provides an easy solution.

Errata.9 – Rules “Conflicts” and Rules Superseding Rules

When a TA is first written, a full list of capabilities, exceptions and inclusions is provided with that TA. Later followup TAs may add to those exceptions and inclusions without there being an update of the earlier TA. The rules provided with the later followup TA take precedent as to the expanded list of capabilities, exceptions and inclusions. The date on a page does not indicate seniority, so a player must deduce TA seniority.

Errata.10 – Upgrading TAs before battle

A ship can warp into a friendly production center star and upgrade TAs to a higher mark before battle that same year, but only if the ship can safely land on the planet of value for 1 battle board turn prior to that battle.

Errata.11 – Redundant TAs Installed on a ship

Players may not add duplicate TAs to a ship for the purpose of providing a damage buffer for more important TAs.

Errata.12 – Fighting a ship that stumbles into a Plague Planet

A ship that stumbles into a Plague Planet survives until the end of the current Cycom. But can it run around raising hell until the ship and its crew croak? Because of certain strategies involving the use of a Plague Planet, the answer is no. The doomed ship's crew becomes sick instantly upon warping into a Plague Planet. The ship immediately warps out and heads for the nearest friendly colonized production center star. If an enemy force immune to the plague prevents warp out, the ship will surrender.

Errata.13 – Destroying enemy ship landed on planet of value

A ship landed on the planet of value for repairs cannot be destroyed until an enemy force destroys or chases away all means of defense. A ship that lands on a planet of value or moon, etc., as a cowardly battle tactic will be destroyed by 1 enemy gun fired at it. See self-destruction on p.136 for ways to dispose of your own ship.

Errata.14 – Contingency Orders Resulting in Overconsumption of Warp Juice

Contingency orders for a fleet that are carried out after a Cycom's Warp Ripple Report has been submitted to other players may result in overconsumption of warp juice. Don't worry about it – just take it out of an imaginary reserve! This option is limited to 1 fleet and occasional use only.

Errata.15 – Discontinuing a Blockade vs. Production

A blockade fleet that departs a star on year 1 does not reduce the star's income for that Cycom. This may cause a player to make a retroactive adjustment to his income after Warp Ripple Reports and interactions for that Cycom have been resolved.

Errata.16 – Battle Errors

Players commonly violate the rules during a battle. Generally, players will not correct errors made during a battle that involves the use, misuse or failure to use TAs on a ship or fortress. The errors, including miscalculations of odds on the Hits Table, will stand as played. Battle board movement errors that result in an advantage for the miscreant must be caught by the opponent, or else they, too, must be left to stand. Exception: Errors caught before ships make their next battle board move must be corrected.

Errata.17 – Interacting Torpedoes

The TA-450 series of Unguided Torpedo, Marks I through XIX interact with opposing Unguided Torpedoes on a 1:1 basis, but not with any other torpedo types.

The TA-460 series of Phyton Torpedo interacts with opposing Phyton Torpedoes, as described on p.253. It does not interact with any other torpedo types.

The TA-470 series of Homing Torpedo does not interact with opposing Homing Torpedoes unless Marks VII through X are involved on 1 or both sides. The Homing Torpedo does not interact with any other torpedo types.

The TA-480 series of Toss Torpedo interacts with opposing Toss Torpedoes on a 1:1 basis. The Toss Torpedo does not interact with any other torpedo types.

The TA-490 series of Asteroid Torpedo does not interact with anything. It is a blocking weapon used as described on p.267. It'll block or explode most anything headed its way.

The TA-500 series of Meandering Medusa can be destroyed by most torpedo types as per the list on p.271. Note that an exploding Meandering Medusa would kill any other Medusa that ends its move within the blast pattern.

The TA-510 series of Negative Energy Torpedo does not interact with anything.

The TA-520 series of Electromagnetic Burst Torpedo does not interact with anything.

Opposing TA-530 series of Gravity Bomb Torpedoes do not interact, except that overlapping blast patterns cancel each other.

Opposing TA-540 series of Dislocation Torpedo do not interact.

Opposing TA-550 series of White Hole Torpedo do not interact.

Opposing TA-560 series of Time Stasis Torpedo do not interact.

The TA-572 MineTorp does not interact with either an opposing MineTorp or the TA-450 series of Unguided Torpedo.

Errata.18 – Telepath vs. Hellfire Machine and Meandering Medusa

The TA-820 Rein-M'tuh Telepath does not predict where the TA-377 series of Heliostatic Hellfire Machine will fire its hellfire. The Telepath is also ineffective against the TA-500 series of Meandering Medusa.

Errata.19 – Time and Technique To Upgrade TAs on a Ship

Generally, a ship may upgrade its TAs to a higher mark by landing on the planet of value of a friendly production center star for 1 battle board turn. Many places in the rules state that a ship merely has to warp into the star to consider itself upgraded. This errata supersedes those statements.

Errata.20 – Placement of Defending OMF Cannot Prevent a Blockade

It is possible to arrange large numbers of OMF in a farflung perimeter around a production center's planet of value in a way that prevents the establishment of a blockade. In such a case, the blockading ship will treat outlying OMF as a planet of value for purposes of establishing and/or maintaining a blockade.

Errata.21 – Too Many Small Ships in a Game? Try This.

Many of the different types of torpedoes are limited to smaller warships. This can lead to battles that feature swarms of smaller ships all carrying torpedoes of 1 type or another. The chart below will create a game with an emphasis on larger ships. If the chart is used, players must agree to amicably resolve conflicts as needed with the main body of the rules.

- TAs 450-455 Marks I-VI Unguided Torpedo – No change
- TAs 488.8-19 Marks VII-XIX Unguided Torpedo – 14-gunner and larger, fortresses
- TA-480 series of Toss Torpedo, all marks – 12-gunner is smallest platform
- TA-500 series of Meandering Medusa – 10-gunner and larger, fortresses
- TA-510 series of Negative Energy Torpedo – 14-gunner and larger, fortresses
- TA-520 series of Electromagnetic Burst Torpedo – 10- to 14-gunners, fortresses
- TA-530 series of Gravity Bomb Torpedo – 8- or 10-gunners only, fortresses
- TA-550 series of White Hole Torpedo – 8-gunners only, fortresses
- TA-560 series of Time Stasis Torpedo – 12- or 16-gun warships, fortresses
- TA-570 series of Mine – No change
- TA-572 MineTorp – No change
- TA-1290 series of Thunder Torpedo – 7-gunner only
- TA-1410 series of Suicide Torpedo – 12-, 15-, 18-, 21-, and 24-gunners
- TA-1415 Suicide Gig – 12- or 14-gunners only, 2 per ship.

Chapter 20



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